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# PAPER TRADE JOURNAL

Vol. XCVII SEPTEMBER 7, 1933 No. 10

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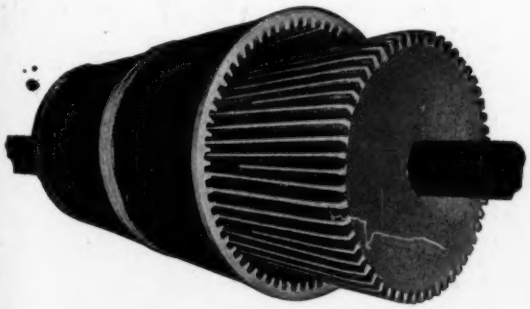

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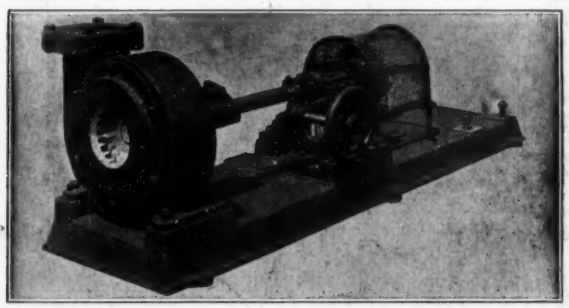

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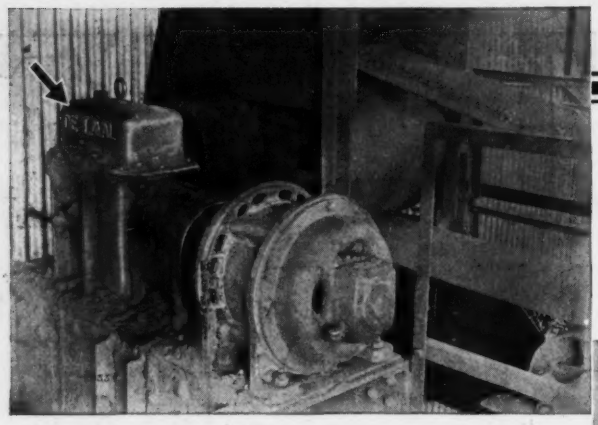

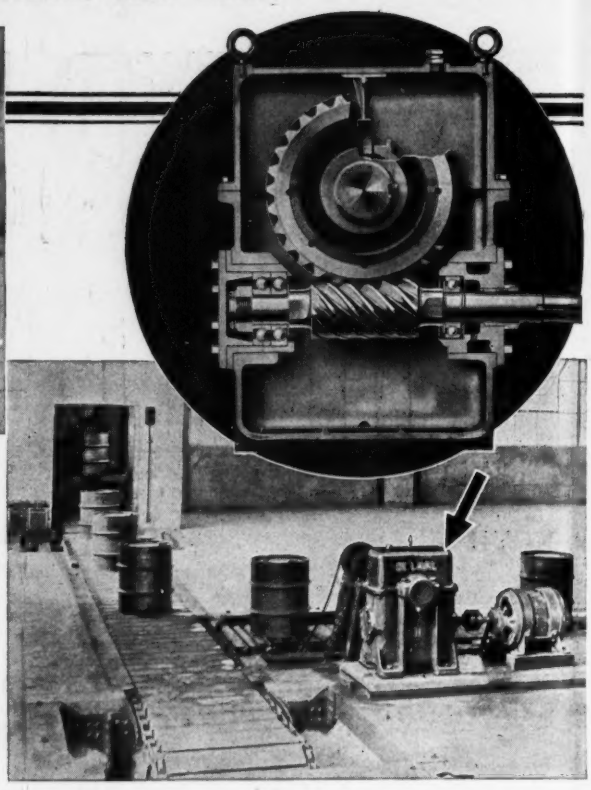

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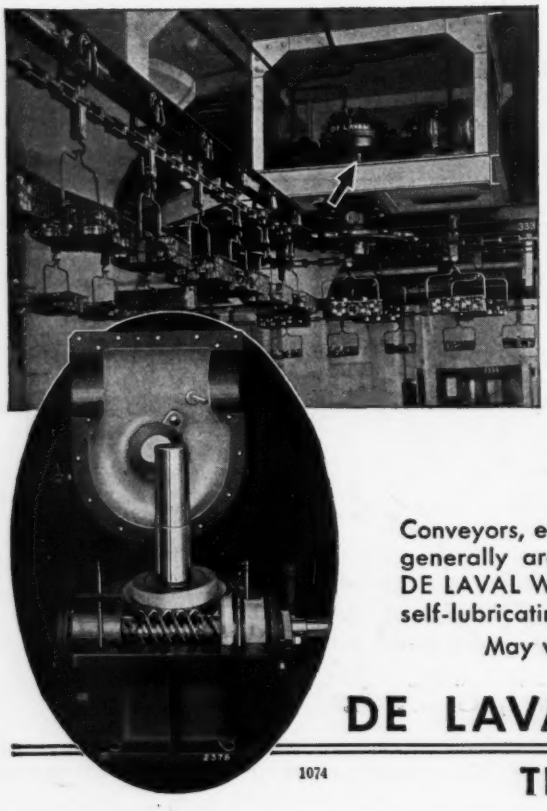

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**PAPER TRADE JOURNAL**

ESTABLISHED 1872

SIXTY-SECOND YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

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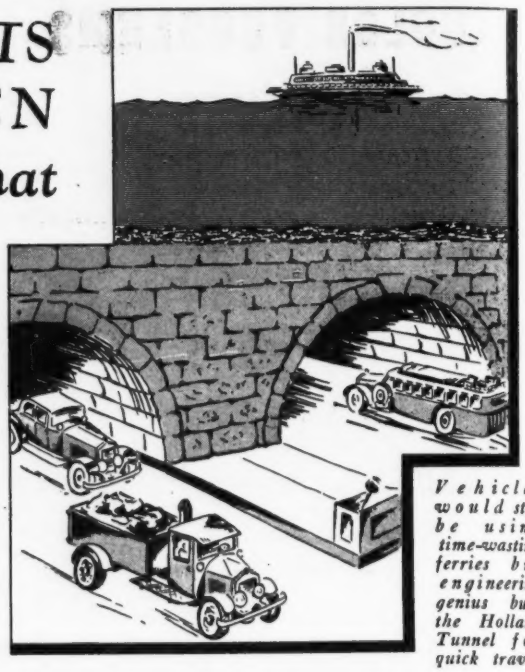

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# PAPER TRADE JOURNAL

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PAPER

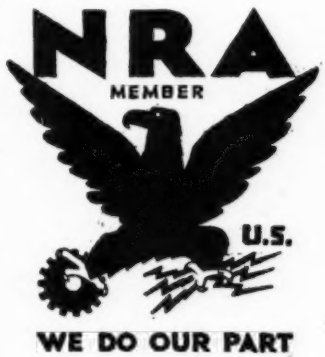
Vol. XCVII, No. 10 — Thursday, September 7, 1933

# NRA Hearing on Newsprint Code Completed

## Association of Newsprint Manufacturers Introduces New Code at the Meeting Wednesday—American Newspaper Publishers Association Registers Objections to Definition of Standard Newsprint—International Association of Machinists and International Brotherhood of Pulp, Sulphite and Paper Mill Workers Object to Wages and Hours

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 7, 1933—Hearing on the newsprint paper industry code was completed, yesterday before Deputy Administrator Pickard of the NRA in the Caucus Room of the House of Representatives Office Building with leaders of not only the newsprint industry but of other grades of paper in attendance. The labor advisors for NRA included Major George L. Berry, Mathew J. Burns, and John P. Burke; industrial advisor, C. R. McMillen; consumer, Emil Kekich; legal, Rowland S. H. Dyer; and research and planning, Max Kossoris.




### Introduce New Code

At the opening of the hearing Deputy Pickard announced that a new code would be introduced which had just been completed Tuesday night by the board of directors of association of Newsprint Paper Manufacturers of the United States in session in this city. A number of changes were made in the code which had been filed early in August. Thurlow Gordon, counsel for the association in offering the new code stated that the manufacturers had given the matter further consideration and that the new code was acceptable to the Deputy Administrator.

### C. K. Blandin Speaks for Manufacturers

The first witness for the newsprint manufacturers was C. K. Blandin, of the Blandin Paper Company, St. Paul, Minn., who made a general statement for the association which was followed by more detailed statements on various definite phases. Mr. Blandin spoke in a general way of the newsprint industry. He stated that the association represents 100 per cent of the production of the United States and that it is open to all newsprint manufacturers. He told the Administrator that there is some $200,000,000 invested in the industry in this country and he spoke of the shift of newsprint production from the United States into Canada. The newsprint industry of this country, he said, is in a serious financial condition, and he spoke about some of the mills which had failed during the past few years. He also took up the import situation stating that some newsprint paper is imported into this country which is anywhere from $2 to $8 per ton less than United States manufacturers can quote. Mr. Blandin also made reference to the definition of standard newsprint paper, which he explained, is that used by the Customs Court and other branches of the government.

### Elisha Hanson Represents Publishers

Elisha Hanson, representing the American Newspaper Publishers Association registered several objections to the newsprint code especially as to the definition of standard newsprint paper. In connection with this Hanson said: "There can be no better definition, if a definition be desired, than that used by Mr. Fordney, the Chairman of the Ways and Means Committee of the House, when he made his report on the Tariff Act, 1922—which was "It is that form of printing paper on which newspapers are published." Inasmuch as the identical language was used in the Act of 1930 and the definition of Mr. Fordney has been sustained by the Courts, the American Newspaper Publishers Association sees no necessity for cluttering up this code with a form of definition such as is offered in Article I, which is later qualified in Pars. 1, 2 and 8 of the Appendix.

"The NRA is not concerned with interpretations of any other administrative agency of the government. Final judicial interpretations have the authority of law, so it is unnecessary to refer to them. As for the "competent administrative authority," there is but one—the Treasury Department—and its authority is limited to the promulgation of regulations for facilitating the handling of importations under the Tariff Act. But such regulations are invalid if they extend or limit the provisions of the statute (Hefferman case) and are of effect only for the one purpose of assisting customs officers in the expeditious handling of the tremendous importations of newsprint paper required for use in the publication of newspapers

*(Continued on page 21)*

# NIRA Changes Initiated in Wisconsin Mills

## New Wage and Working Schedules Put Into Effect to Comply With Code Provisions—Thilmany Pulp & Paper Co. Adds Additional Hundred Employees—Badger Tissue Mills Reorganize Working Forces—Gilbert Paper Co. Qualifies Under Code

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 5, 1933—This week marked the beginning of new wage and working schedules in several Wisconsin mills where changes were to be put into effect to comply as far as possible with the government's blanket code, and the provisions of the paper code itself as proposed. Some mills already had their new schedules in effect, but others required additional time for the revising of their shifts and organization, making September 1 the effective date.

Tentative plans announced several weeks ago by the Thilmany Pulp and Paper Company, Kaukauna, Wis., resolved themselves into a 36-hour week instead of 48 for shift workers, and 40 hours instead of 48 for day workers. Wages are increased so each employee will receive the same pay for the shorter day as he did for the longer. Time and one-third will be paid for emergency overtime work beyond forty hours; time and one-half for Sundays and holidays. The more skilled jobs are being filled by promotion. Approximately 100 men will be added in addition to 75 placed during the last two months.

Badger Tissue Mills, Kaukauna, Wis., put into effect last week a 40-hour week for all workers, including the office force, at the same pay as received for 50 hours, according to L. F. Nelson, general manager. Reorganization of working forces has been going on for two months, and the number of employees has been doubled. Eighteen were added recently, and four more will be engaged soon.

Gilbert Paper Company, Menasha, Wis., has qualified under the NRA code. Not a single employee was dismissed during the past several years because of business conditions, the work being divided so as to retain them all on the pay roll. About ten additional men have been added and the force now numbers approximately 300 persons.

### Proposed Paper Box Code Protested

Changes in the code proposed for the paper box industry will be requested by an organization tentatively formed at a meeting of representatives of twelve concerns in Wisconsin outside of Milwaukee, held at Fond du Lac last week. The meeting was called by the Wright Brothers Company, Fond du Lac, Wis., and the Sheboygan Paper Box Manufacturing Company, Sheboygan, Wis. R. E. Porter, of the Sheboygan company, was elected temporary chairman. Another meeting will be held late in September to complete organization plans. Milwaukee box manufacturers, who have their own organization, are expected to join the new organization in the demands for changes. A clause relative to collective bargaining similar to that of the automobile manufacturers was proposed for the box makers.

The code proposed for the industry sets a minimum wage rate of 32½ cents an hour and also fixes uniform "nominal rates" for every type of operation. These proposals are protested by the Wisconsin group, which maintains that the small city manufacturer should have the benefit of a wage differential of perhaps five cents an hour, if the large Eastern manufacturers with plants equipped with automatic machinery are not to have a decided advantage over the small factory.

It is also claimed that it is not feasible to set uniform rates for all operations in all plants of the country regardless of working and living conditions. It is believed that uniform rates will increase the cost of small boxes; that the purposes of NRA would be defeated; and that advantages would be given to manufacturers of semi-setup and folding boxes.

### News of the Industry

Manufacture of paper roll plugs was resumed last week by the Athens Implement and Manufacturing Company, Wausau, Wis., following the reconstruction of its factory buildings destroyed by fire on July 28. One machine is in operation, and others will be started as soon as they have been installed. Part of the equipment of the Northern Machine Works, Inc., Wausau, Wis., has been purchased and will be added to the new plant.

Buildings completed are the main factory 30 by 90 feet in size, with two additions 8 by 24 feet and 16 by 24 feet. Another building 18 by 24 feet houses the "wood butcher." Construction is still under way on a warehouse 18 by 48 feet. A dry shed 24 by 36 feet also will be erected. The boiler and engine room, which were undamaged in the fire, have been given a new roof. Capacity operation will be started as soon as the purchases of machinery are completed and it has been installed.

The Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., and the Nekoosa-Edwards Paper Company, Nekoosa and Port Edwards, Wis., have been given a reduction by the Wisconsin Tax Commission of 4.2 per cent on the assessments of their public utility plants this year. Coupled with reduced property taxes the taxes paid by these and other power companies will average 8 per cent less. The Consolidated company's assessment this year is fixed at $3,500,000 and the tax will be $68,185.30. The Nekoosa-Edwards Light and Power Company is assessed $125,000 and the tax to be paid is $2,435.19.

Other assessments include: Wisconsin Power and Light Company, $46,000,000, tax $896,150.84; Wisconsin Valley Electric Company, $10,250,000, tax $199,685.79; Wisconsin Valley Power Company, $2,000,000, tax $38,963.08.

Foreign pulp shipments are arriving in quantities at the docks at Marinette Wis., with four ships docking in one week. Two cargoes of 1,000 tons each went to the Marinette and Menominee Paper Company and one of 2,000 tons was for Hoskins-Morainville Paper Company, Menominee, Mich. The amount of the fourth cargo, also for the Marinette and Menominee Paper Company, was not announced. All ships were under British registry.

Damage of approximately $2,500 was caused by a fire in a wooden air duct leading from the hood of a paper machine to a fan at the Nekoosa-Edwards Paper Company, Port Edwards, Wis. last week.

Joseph Brown, who had been employed for one week, was electrocuted at the Hoskins-Morainville Paper Company mill at Menominee, Mich., last week. While working on top of a stock pile hoisting rolls, he grasped the charged third rail of the conveyor for some unknown reason and met instant death.

# Paper Demand Moderately Active in Boston

## Fine Paper Market Irregular, With Reports Ranging From Fairly Slow to Very Good—Ledger and Bond Papers in Light Request—Wrapping Paper Movement Falls Off Slightly—Box Board Section Somewhat Easier—Paper Stock Division Quieter

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 4, 1933—August was a fairly good month in the paper market in and around the Hub, although there was less activity than during July. The trade is looking forward to an increased volume of business this month, with considerable optimism in regard to the working of the NRA. Business for the last week in fine papers averaged fair, with various statements being made in regard to the demand. Some of the comments were: "Fairly slow," "fair, not exceptionally good," "a little better than in the last few weeks," and "very good." There was a moderate demand for ledgers and bonds, with a certain amount for papers for advertising purposes. The local representative of a large manufacturer of fine papers said a lot of small orders, but no big ones, had been received. Wrapping paper dropped somewhat in demand, "not too rushing," but kept up fairly well. One wholesaler expects the current month to be the biggest of the year in kraft and specialties.

There seemed to be a marked increase in the demand for box coverings. The trade has apparently accepted the new prices with comparative equanimity. A trend back to the fancy and better grades of box papers is in evidence. One dealer had the best two months in July and August for two years and the best August for three years.

The call for box board has eased, although there was some activity. Prices continue to hold firm.

The paper stock market is hardly better than fairly active, although prices in a few grades of old papers have been marked down. No. 1 mixed papers have declined to .60 @ .67½ from .70 @ .77½; print manilla to a flat .90 from .90 @ 1.05, and corrugated boxes have been put at a flat .77½ from a range of .62½ @ .85. Bagging, domestic rags, new and old, and foreign rags remain at the same levels.

### H. L. Carter's Daughter Married

Miss Elfriede Carter, daughter of Hubert L. Carter, of Carter, Rice & Co., Corp., and Mrs. Carter, was married Saturday afternoon at the Church of the Holy Trinity, Jefferson, N. H., to William Rupert Maclaurin, son of Mrs. William C. Maclaurin, of Charles River Square. Miss Carter was graduated from the Winsor School, is a debutante of the 1928-'29 season, and a member of the Junior League. She was graduated from Vassar College last June and has spent a year at the University of Munich, Germany. She is an ardent enthusiast in skiing and has been very active in the sport the last few years. Mr. Maclaurin, son of the late Dr. Maclaurin, former president of the Massachusetts Institute of Technology, was born in New Zealand. He was graduated from Harvard College in 1929 and from the Harvard Business School. He studied at Cambridge University, England, and was on the Cambridge ski team. He was the first man to ski across the Andes in South America and is one of the most active competitors among Boston skiers.

### News of the Trade

At a meeting in connection with the George W. Wheelwright Paper Company case held last Tuesday Judge Gray appointed Frank Murray as master to determine as to the ones having priority claim. Private hearings have been held at which were considered the questions whether the town of Leominster should receive preference in any distribution of cash held by receivers and whether a $30,000 note of the First National Bank should be included among the preferred assets. Receivers have filed a petition for their allowance with the Court. A reorganization of the company, as suggested by the Court, is hoped for.

Simon Seth Winer has sold to his brother, David Winer, his interests in the Naumkeag Paper Company, Salem, Mass., and is operating a wholesale establishment, the Seth Winer Paper Company, at 106 Friend Street, Boston. He is handling the same general line of wrapping paper and specialties and will also add cellophane specialties and twine to his lines. Mr. Winer operated the Naumkeag Paper Company successfully for the last twelve years, having started that business in 1921. His brother, David, had been in business with him for the last eight years.

The Arnold-Roberts Company has put in an order for some 20-pound bond paper with the NRA eagle watermarked in the sheet, which will be available to the printers within a week.

Percy D. Wells, paper wholesaler, who recently underwent an operation for the removal of cataracts, expects to return to his office this week.

Edward M. Davenport, treasurer of Spaulding & Tewksbury Company, box board dealers, who has been at Southwest Harbor, Me., for the summer, expects to return this week.

J. C. Hall, treasurer and manager of John Carter & Co. Inc., wholesalers of fine paper, who has been at his summer residence at Connecticut Lakes, will return this week.

Gordon Blanchard, of the New York office of the Collins Manufacturing Company, Holyoke, Mass., called on the Boston trade last week.

Charles F. Small, of the sales service department of Storrs & Bement Company, has returned from a two weeks' vacation, including Hampton, N. H., and Maine.

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## Centauer Corp. Buys Mill

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., Sept. 2, 1933.—The former plant of the Warren Parchment Company, has been acquired by the Centauer Paper Products Corporation, of Brooklyn, and operations will be started in a few days. The plan was occupied by the Ron-Noc-O Paper Company until a few months ago when financial difficulties were encountered. Officials of the Brooklyn concern announced that about 85 persons would be given steady employment in the manufacture of paper bags. A force of mechanics are now busy placing the plant in readiness for the start of operations. The Centauer Paper Products Corporation, maintains plants in New York and Brooklyn and head officials are expected to arrive here this week to prepare for the opening.

An official of the company stated that pulp supplies would be brought from Three Rivers, P. Q., while all other materials would be bought in this section.

# Paper Board Situation Improves in Canada

## Dominion Manufacturers Announce Another Increase of $3 Per Ton on All Grades, With Exception of Patent Coated, Which Remains Unchanged—Movement Due to Higher Prices Now Existing for Waste Paper—Paper Box Companies More Active

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., September 4, 1933—Following the advance in price of board which took place on June 1, the paper board manufacturers in Canada have sent out price quotations representing another three dollars per ton increase on all lines of board, with the exception of patent coated, which remains at the old figure. The new figures became effective on August 24 and will probably remain in force until December 31. According to one big board manufacturer, "too many uncertainties surround the paper box and paper board industry for us to become optimistic regarding the immediate future of the industry, but mild improvement in business has taken place this year to date." Among the uncertainties referred to is the one of raw materials. Prices of scrap paper in Canada have advanced $6 a ton over the recent low level and the two recent advances in board have brought the product in closer line with quotations in the United States under the NRA, the increase there being from $28 to $57.50. There is no duty on the product coming into Canada.

Most producers of paper board and paper boxes in Canada have not only covered their major requirements of raw material up to the end of the year but have contracted for the requirements of their consumers for that period. Hence there will be no immediate changes in the manufactured products, such as paper boxes, except for new business that may develop. It is considered probable that after the New Year a still further increase in paper board prices and paper box quotations will come chiefly because of the higher price now existing for scrap paper.

### Corrugated Paper Box Co.

Improvement is reported in the business of Corrugated Box Company in the first six months with the result that the company is now in the black. Last year a deficit was shown after charges. Tonnage has increased, but due to low prices for the products prevailing, the small net profit shown in the first half of this year was attained only by most scrupulous checking of costs. Growth in sales has been gradual and the volume is not yet anything like normal. Consumers continue to buy from hand to mouth, which increases operating difficulties. Some days as many as sixteen sizes have to be run as against six in normal times. This is because every buyer wants a little and demands prompt shipment. If fair-sized orders developed machines would get substantial runs and if makers could secure advance orders they could stock up.

### Firstbrook Boxes, Ltd., Show Increase

The paper box department of Firstbrook Boxes, Ltd., Toronto, has shown an increase in volume and a fair profit has been realized this year. The hope is expressed by the management that an upward revision in prices of paper board will continue after the first of the year. If prices of scrap paper in the United States hold at recent advanced quotations, prices of finished products will have to be revised upward, they say. Good months were experienced by the company in March, April, May and June. In July and August business slid back a little, which is seasonal. The final four months of the year, usually the best, will, it is anticipated, bring about an upturn in business once more, and this may be fairly pronounced.

An official of Canadian Wirebound Boxes, Ltd., which includes paper boxes in its operations, reports that business has picked up quite nicely this year to date, but particularly within the past two months. Prices, however, are far from satisfactory, but the company is depending upon volume to maintain profits, which have continued fairly good. If the improvement of the past two months is maintained, results for the year will show a gain. With Hinde & Dauch of Canada business has been spotty but greater activity from time to time in orders has improved the situation slightly this year.

### Dryden Operations Expand

Operations of Dryden Pulp and Paper Company, with mills at Dryden, Ont., have reflected the progressive improvement in demand for pulp, and for the past several months the company has been working close to capacity. It is noticeable that the gain in exports has been most marked in sulphate and ground wood, the two grades of pulp that are produced at the Dryden mills, which have an annual rated capacity of 22,100 tons of sulphate and 12,000 tons of ground wood. Dryden also has a productive capacity of 11,000 tons of board building paper and 10,000 tons of kraft paper. With building operations in Canada lagging behind in comparison with the general improvement in business and industry that has taken place since April, there has been, it is understood, no notable expansion in demand for either of these two lines of production. Output and sale of cement has continued on a limited scale, and as the requirements of Bates Valve Bag, which depends largely on purchases by the cement companies for the business, represent an important source of kraft sales for Dryden, this department of the company's business has suffered accordingly. Results of the company for its current fiscal year, which ends September 30 next, are expected to show an improvement over the preceding period when operating profits for the year were only $56,995 and a net loss of $33,258 was reported after bond interest and exchange, but before depreciation.

### Notes and Jottings of the Trade

Among the paper firms who had attractive exhibits at the Canadian National Exhibition in Toronto this year were Interlake Tissue Mills, Rolland Paper Company, Continental Paper Products, Ltd., Victoria Paper and Twine Company, W. J. Gage and Company and Denison Manufacturing Company. The Ontario Government had an informative pulpwood display in the Ontario Government Building.

Don Valley Paper Mills, Ltd., Toronto, have let contracts for the rebuilding of their beater system. The machines are being installed by the Waterous Company, of Brantford, Ont., and the plant will be closed down a week while the change over to the new equipment is being made.

The entire office staff of the Canadian International Paper Company, Victor Building, Ottawa, has been moved to Maniwakie, Que.

The Syrett Paper Products Company, wholesale paper dealers, Wellington street, Toronto, C. V. Syrett proprietor, has assigned for the benefit of the creditors. The firm went into liquidation over a year ago and a little later Mr. Syrett made arrangements to continue the business. A number of Ontario paper mills are interested.

# Demand for Paper Less Active in Chicago

## While August Evidenced Slackening of Rapid Pace of Early Summer, Business Was Miles Ahead of Corresponding Period Last Year—Request for Book and Cover Papers Well Sustained —Kraft Wrapping Paper Continues to Display Strength

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., September 2, 1933—Hesitation due partly to the forthcoming hearing of the paper industry's code scheduled for September 14 and partly to a general late summer slackening in all lines of business, has descended upon the Chicago paper market. While August has evidenced a slackening of the rapid pace of the early summer it is, as one executive expressed it, "still miles ahead of August, 1932." Prices have continued to hold firm but demand has flattened out somewhat. Optimism prevails for the outlook almost immediately following Labor Day.

The "August quiet" has fallen on virtually all lines. The kraft market continues to be comparatively strong, a condition perhaps more marked because of its earlier weakness. Books and covers have held their improved position. Ledgers and writings showed no particular upswing in demand. But the market, in general, was characterized as firm. News print offered no change to the investigator, while ground woods continued to go along as in the past weeks, with fair demand but no appreciable increase in prices as yet. Sulphite bond markets were virtually unchanged. Paper board held its position well, according to reports.

Actual business conditions combined with the forthcoming code hearings and the big session of the National Paper Trade Association early in October to keep things comparatively quiet though decidedly improved over the business in sight one year ago. Waste markets were fairly active though, in general, in sympathy with the general market quietness.

### Safety Congress Program

Concurrent with the announcement of the paper and pulp section program in connection with the 22nd Annual Safety Congress and Exposition to be held at the Hotel Stevens, Chicago, October 2-6, comes the news containing the names of mills on the safety honor roll for 1932. Those listed for outstanding records in safety work are as follows: Book and specialties, Champion Coated Paper Company, Hollingsworth & Whitney, Louis DeJonge & Co., and Kimberly Clark Corporation. News print mills, St. Croix Paper Company. Roofing mills, Pioneer Paper Company and Flintkote Company. Tissue mills, Hoberg Paper and Fibre Company, United States Envelope Company. Wrapping paper mills, Nekoosa Edwards Paper Company, Bedford Pulp and Paper Company. Box board mills, Cornell Wood Products Company, American Can Company. Strawboard, wall and insulation board mills, Masonite Corporation, Rogers Fibre Company. Bag mills, Crane & Co. Box and container manufacturing, Hinde & Dauch Paper Company, Container Corporation of America, Ohio Boxboard Company, Texas Corrugated Box Company. Paper goods manufacturing, United States Envelope Company.

The National Safety Council headquarters in Chicago have also announced the executive personnel of the paper and pulp section work under whose direction the program will develop. The general chairman is J. J. Plzak, Consolidated Water Power and Paper Company. H. D. Banta, Hoberg Paper and Fibre Company, is secretary. The paper and pulp program at the October meeting will be held on Monday afternoon, October 2; Tuesday morning, October 3, and Thursday morning, October 5. Nip hazards in finishing rooms, tissue converting plants and board mills are to be discussed along with safe practices for repair men in the paper industry and kindred subjects.

### Century of Progress Day

Though September 1 was "Paper Day" at A Century of Progress Exposition and some observance was made of it, directors of the Paper Foundation definitely decided to postpone any outstanding observance until the time of the National Paper Trade Association sessions in Chicago, the first week in October. September 1 had been originally chosen to fit in with plans for the National Paper Trade Association sessions here late in August but postponement of the latter forced a new date on to the Paper Foundation program. Accordingly, when mill men, jobbers, converters, salesmen and all are in Chicago in October the Century of Progress "Day" will be celebrated along with the Salesmen's Association's golf party and many other extra attractions. The Paper Exhibit continues to be a "hit" among the exhibits in the General Exhibits Building, average attendance increasing as interest in the Fair continues to grow. The million mark seems certain to be reached before the final day of the Exposition.

### News of the Trade

The Middle West Division of the Salesmen's Association of the Paper Industry, held no meeting on September 4, in keeping with a time honored observance of Labor Day. It will be after the public hearings on the paper code, slated for September 14, that the salesmen will redouble their efforts to clarify all provisions and enter the market whirl again. Meanwhile, the semi-final golf event at Westmoreland, slated for Friday, September 15, is the next big item on the program.

Printing magazines have had quite a bit to say about recent merchandising experiences of the Lily-Tulip Cup Corporation which are of interest to the paper industry. Briefly, a package idea has created a whole new market for the lily—an idea that is likely to spread to manufacturers and distributors of other products. Lily-of-the-valley bulbs, previously sold only to growers, are now traveling into thousands of homes, schools and offices because a unique package enables one to watch every step along the road to full-bloom. The package was from the Lily-Tulip Cup Corporation's Nestrite line of food containers. It is a 12-ounce squat-shape cup, waxed to be leak-proof, roomy enough for the extensive root system of the bulb. The cover was die-cut with three three-eighth inch holes through which the bulbs protrude and six smaller holes for watering and aeration. Printed in vivid red and green with a white background, this package stands out even in competition with the colors in any florist shop. One bulb grower has sold 25,000 of the units.

Ed Shafer, Mississquoi Paper representative in this territory, is the proud father of a baby girl, born on August 26—the fourth in the family.

# Philadelphia Paper Market Outlook Brighter

## Practically All Pennsylvania Paper Mills Shut Down Through Effects of Recent Storms Now Restored to Full Capacity Schedules—Standard Grades of Both Fine and Coarse Papers Continue to Move in Satisfactory Volume for the Season

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., September 2, 1933—The first setback which the most active branch of the paper industry—paper stock—has had in the last two months was experienced during the week. Storm damage not so much to mills as to avenues of transportation and the advent of Labor Day holidays caused an enforced shutdown and this enabled the stock dealers to accumulate supplies for which the mills unquestionably will be most eager to take up during the coming week. That period—Labor Day over—and the season of resumption after the summer quiet being at hand, is regarded as having tremendous importance this year as indicative of what is to come. As far as present indications point out, that future will be most satisfactory. Certainly stock dealers have not been compelled to make the slightest concession in quotations to the mill and thus far have been limited in the amount of their sales solely by the amounts of stocks they could gather together. While it is true that the enforced idleness of the mills resulted in just that much less production it is equally true—if the judgment of the packers is correct—that there is an accumulation of orders which could not be filled because of the shutdown, and when the season begins immediately after Labor Day the mills will continue to be eager to receive just as much stock as can be gathered together.

Reports which have reached the city of a $2 a ton easing off of quotations in Chicago and perhaps in New York as well have no bearing on the situation because the quotations as reduced in the two cities mentioned were and still are the prevalent ones in this city. During the week the market was of course largely nominal but such sales as were made were all at outside rather than inside prices and there was in the buying not the slightest indication of any early softening.

In both the coarse and fine paper divisions of the trade, business continued on the even keel it has enjoyed during the earlier weeks of the now closed month and the winding up of the books show generally that it was, against the background of general industrial conditions, quite satisfactory. Garrett-Buchanan Company, to illustrate by an example that is not isolated but typical, had dollars and cents sales aggregate just a trifle more than 20 per cent for August in excess of those for July. Ordinarily if August does as well as July, the result is regarded as satisfactory.

All the mills in the Philadelphia district more or less affected by the recent storm, are now, or will be by Tuesday, restored to full capacity. The most serious obstacles which they had to overcome was in the matter of deliveries. In Manayunk, on the island, a truck carrying stock from the local buying agent was completely submerged. After the waters receded, fully 7 feet of accumulated mud had to be taken out of the roadway on to the old Nixon and the Container Corporation of America mill by a steam shovel with the result that an earthwork twelve feet high was raised alongside the road at its lowest depression. The Manayunk mills have been so accustomed to high water that the exceptionally high one did no serious damage further than the short circuiting of motors, many of which had to be taken apart and repaired. It is understood that no serious damage was done to any of the paper making machinery.

### Paper and Bag Institute Meets

The meeting of the Paper and Bag Institute held at the Broadwood Hotel on Tuesday of last week brought out a record breaking attendance of forty. President William A. Hentz, of the Philadelphia Paper Trade Association, discussed the terms of the Paper Code, and H. J. Hogg, one of the group, also made an address on this subject. There is pending before the Philadelphia Paper Trade Association the application for membership in it of more than thirty present members of the Paper and Bag Institute, and it is the intention of these and others to be present at the meeting to be held in Dufors Restaurant on Thursday, September 7th, at which time certain constitutional changes will be considered by the Paper Trade Association with a view of opening its doors more widely so that those in allied lines can be taken in. While the association already has a little more than twice the number it had at the beginning of the year pending and others which are expected, it is believed by President Hentz will result in a membership of close to one hundred, or approximately four times the number when this year began.

### News of the Trade

Harvey Van Aiken, assistant treasurer of the Garrett-Buchanan Company, left the New Jersey Homeopathic Hospital on Friday much improved but not entirely recovered from most unfortunate experiences during the recent storm on the Atlantic coast. He was caught out on the ocean during the height of the storm on a fishing trip and his rescue was effected by a Coast Guard body which threw life preservers to all on Van Aiken's boat and aiding them in swimming to the coast in safety. On his way home, however, by automobile, Mr. Van Aiken was run into and he was so badly contused and cut that he was forced to go to the hospital for treatment.

Morgan H. Thomas, head of Garrett-Buchanan Company, who has been touring Europe with Mrs. Thomas, will return shortly, being scheduled to arrive in New York on September 7.

Norbert A. Considine, head of the Paper House of Pennsylvania, and Vice Consul in Philadelphia for Finland, from which country he recently returned, brings information both of personal and of trade interest. It was his unusual experience during this trip to enjoy an automobile trip to the Arctic Circle by a recently completed stone road in Finland, going as far north as the Petsemo District and being the only road in the world making accessible an automobile trip to the Arctic Circle. Behind his desk there now hangs a beautiful hand-made marriage rug bearing the date 1810, which but recently had been on exhibition in a museum in Finland. An interesting development among the Finnish paper mills is the use of a native granite for wood pulp machinery stones. Until recently all these were imported from this country, but a type of granite has now been developed in Finland with which the mills there are experimenting and which is said to be admirably adaptable for the coarse grinding of wood.

# NRA HEARING ON NEWS PRINT CODE COMPLETED

*(Continued from page 15)*

in the United States, so, this Association moves to strike out the second half of the definition of news print in Article I, relating to interpretation or construction by competent administrative or judicial authority. It is wholly irrelevant if the first half is desired.

"Better definitions would be that of Mr. Fordney

" 'That form of printing paper upon which newspapers are printed' or

" 'Printing paper, other than rotogravure paper, used in the manufacture of newspapers.'

"If it be the contention of the proponents of this code that the definition as offered is offered only for the purpose of describing those who come under this particular code, then the second paragraph of Article I is contradictory. Certainly, the use of the words 'dutiable' and 'of regular editions' must be eliminated because of vagueness and uncertainty. They have no business in this code, because if the meaning of the law is to govern, the law provides for the free entry of 'standard news print paper' for all editions. Paper, the chief use of which is in the manufacture of newspapers is not dutiable.

"The American Newspaper Publishers Association therefore moves to strike the words 'dutiable' and 'of regular editions' from Article I, Par. 2; and further suggests a revision of the paragraph, with all reference to dutiable papers and regular editions of newspapers eliminated, in harmony with Par. 1, amended as proposed heretofore."

### Louis G. Caldwell Speaks for Publishers

Another witness for the newspapers was Louis G. Caldwell, who appeared on behalf of the *Chicago Tribune* and the *New York Daily News*. He also objected to the definition of standard news print paper as carried in the code of the manufacturers.

He urged the elimination of the word "dutiable" in the definition of "industry" in the code. "I recognize," said Mr. Caldwell, "that there has been an attempt to improve the definition over that which was contained in the code originally submitted. I would not be here to suggest any further change if I believed that the desired correction in the definition had been successfully achieved. I shall go into the matter in further detail later on in this statement, but for the present will say that the sentence to which we object still seems to give full force and effect to what is known as the technical treasury definition of 'news print', except in those respects in which it has been specifically overruled or set aside by the courts."

Guy V. Harrington, representing the Periodical Publishers Institute asked that the definition of news print paper in the code be made more specific. He presented an amendment to the code's definition of "news print" which would leave it as now interpreted under rulings by the Treasury Department and the United States Customs Court.

### J. H. Slater Speaks on Wages and Hours

Discussion of the wage and hour provisions of the code was lead by J. H. Slater, general manager of the Escanaba Paper Company, Escanaba, Mich. He stated that mills now were operating 6 days a week on three eight-hour shifts per day, as required for economical use of their facilities. The 40-hour maximum week provided under the code would increase employment approximately 10 per cent, he stated. After pointing out that mills representing 40 per cent of productive capacity in the United States already had defaulted on their obligations, Mr. Slater stated that any higher operating cost would drive the entire news print industry out of the United States into foreign countries and thus reduce employment at home. He was unable to reconcile the 40-hour week with provisions of the code that machinery should operate a maximum of 144 hours per week. This apparent discrepancy would be overcome, William O. McKay exclaimed, by the expedient of staggering shifts. The present union agreement with his plant, the Great Northern Paper Company, calls for 48 hours of work per week, Mr. McKay exclaimed, and the staggering of shifts was successfully in operation.

### R. S. Kellogg Furnishes Employment Figures

Deputy Pickard, at this point, insisted that one of the vital elements of a code was the determination of what effect reduced hours of work would have in increasing employment. He asked R. S. Kellogg, secretary of the association, to furnish employment figures for the industry. These showed that the number of workers had fallen from 8,960 in the year 1928, to 6,560 in June of this year, with a corresponding drop in total yearly wages from $13,500,000 to $7,200,000. Mr. Kellogg stated that the 40-hour week proposed would add about 650 employees to the industry, and that the minimum wage would increase total payrolls some 4 per cent. The code specifies that male employees shall receive a minimum of 35 cents an hour, with females paid at the rate of 30 cents. For employees other than those engaged in production, the minimum rates are the same as those of the President's Reemployment Agreement: $15 per week in cities of more than 500,000 population, and graduated down to $12 per week in towns of less than 2,500.

### Labor Objects to Wage and Hour Provisions

Strenuous objection on the part of labor to the wage and hour provisions was voiced by R. S. Newham, representing the International Association of Machinists, and John P. Burke, International Brotherhood of Pulp, Sulphite and Paper Mill Workers. Mr. Newham offered an amendment providing a maximum week of 30 hours with a weekly minimum of $25 for common labor and $48 for machinists and maintenance men. He asked that these rates apply to every mill regardless of the size of the community in which it was located. On questioning by Deputy Pickard, Mr. Newham stated that he did not know whether mills would be able to obtain the additional help required by a 30-hour week, as he had made no study of that situation.

Mr. Burke contended that the industry now is operating an average of only 40 hours per week and that the code would not increase employment to any appreciable extent. He also contended that some mills now are paying a minimum wage higher than that proposed in the code, and that with the reduction of hours and wages the lower paid workers would receive less money in their weekly envelopes under the code than they now are getting. He proposed a minimum pay of 42 cents per hour for males and 38 cents for females. This, he said, was based on the total weekly sum that the industry was willing to pay when its first code was filed.

Mr. Burke referred at length to the over-capacity of existing mills to supply the present consumption in this country, and stated that "labor is going down the line" with American producers in seeking protection of American industry from foreign production. In support of his contention that the code would provide little additional employment of workers in this industry, he pointed out that one mill in New York now is installing new machin-

ery that would "supplant three times as many men as would be given new employment in that mill under the code". The hearing was recessed at 1:10 P.M. to be resumed at 2 o'clock.

J. D. Zellerbach of the Crown Zellerbach Company spoke on price lists, exports, sales, etc. as set forth in the trade practice appendix to the code. He stated that news print paper is now selling below cost.

J. M. Marshall, of the Great Northern Paper Company also spoke on the trade practice section and stated that it merely sets forth some of the present trade practices in use in the industry.

A. G. Graustein, of the International Paper Company appearing only as president of that company and not on behalf of the association asked for an amendment to the labor section owing to the peculiar labor situation in his company. He asked for the insertion of a labor clause similar to that in the automobile industry.

The hearing has been concluded. There will probably be further conferences and the newspaper publishers were given a week in which to file a brief. It is expected that it will be some little time before the code is finally accepted by General Johnson and it goes to the President for final signature.

The new code as it was introduced yesterday is as follows:

## CODE OF FAIR COMPETITION FOR THE NEWS PRINT INDUSTRY OF THE UNITED STATES

To effectuate the policies of Title I of the National Industrial Recovery Act, the following is hereby established as the Code of Fair Competition for the above industry.

### Article I. Definitions

1. The following words are used in this Code with the meanings herein set forth:

"NEWS PRINT"—The words "news print" is used in this Code with the same meaning with which the words "standard news print paper," are used in paragraph 1672 of the Tariff Act of 1922, and in paragraph 1772 of the Tariff Act of 1930. Any interpretation or construction of the words "standard news print paper" as used in said Acts by any competent Administrative or Judicial authority shall apply also to the words "news print" as used in this Code.

"INDUSTRY"—The manufacture in the United States from pulpwood, wood pulp and/or other stock of news print and all special dutiable papers (as distinguished from "standard news print", described above), other than rotogravure, when such special papers are manufactured and sold for regular and continuous use in the making of regular editions of daily newspapers.

"PERSON"—To include individuals, partnerships, corporations, and associations, except associations not for profit.

"MEMBER"—A person engaged in such industry.

"ACT"—The National Industrial Recovery Act.

"ADMINISTRATOR"—The National Recovery Administrator.

"ADMINISTRATION"—The National Recovery Administration.

"THE ASSOCIATION"—The Association of Newsprint Manufacturers of the United States.

"THE CODE AUTHORITY"—The body herein created charged with authority to administer this Code.

### Article II. Organization

1. This Code is proposed by and shall be administered through the Association.

2. The members of the Advisory Committee of the Association, together with such other person or persons as the Administrator may designate shall be known as the Code Authority of the Industry, hereinafter referred to as "The Code Authority". The persons designated by the Administrator shall be advisory members without vote.

3. The Code Authority is charged generally with the duty of administering this Code and shall have such power as shall be necessary therefor together with such other powers and duties as are herein prescribed.

### Article III. Hours of Labor

1. The operating schedule of paper machines shall not exceed 144 hours per week. Pulp Mills shall operate a sufficient period to produce the pulp necessary to supply the paper machines.

Beginning with the second full week after the approval of this Code, and continuing thereafter, each news print mill shall employ such number of hourly paid employees as will result in an average weekly employment of all such employees not in excess of forty hours per man per week over a period of four successive calendar weeks with the following exceptions:

(a) Such limitations shall not apply to employees regularly engaged in an executive or supervisory capacity and outside salesmen.

(b) Such limitations shall not apply to employees engaged in emergency repair or maintenance work, boiler house employees, electrical power employees, filter plant employees, but in no case shall such employees be required or permitted to work more than 168 hours in any period of four successive calendar weeks.

(c) Such limitations shall not apply to watchmen, but in no event shall they be employed more than 8 hours in any one day.

(d) In continuous process operations, such limitations shall not apply to crews operating paper machines or pulp digesters or grinders, while engaged at the end of a machine run, in washups, changing wires and machine clothing, and in otherwise preparing for the succeeding run; nor to highly skilled operators when the cessation of operations would result in serious loss or would deprive other workers of employment.

2. At the end of each calendar month, every member shall report to the Code Authority, in such detail as it may require, the number of man hours worked in that month, under exceptions (b) and (c) above, and the ratio which said man hours bears to the total number of man hours of labor of the same class during said month.

3. Under no circumstances shall an employee covered by this Article be employed or be permitted to work for more than one member of the industry in the aggregate in excess of the hours prescribed above.

4. Employees other than those covered by Section 1 above shall not be required or permitted to work more than an average of 40 hours a week over a period of 12 months.

(a) Such limitations shall not apply to employees regularly engaged in an executive or supervisory capacity, office or salaried employees receiving thirty-five ($35.00) dollars or more per week, or to outside salesmen.

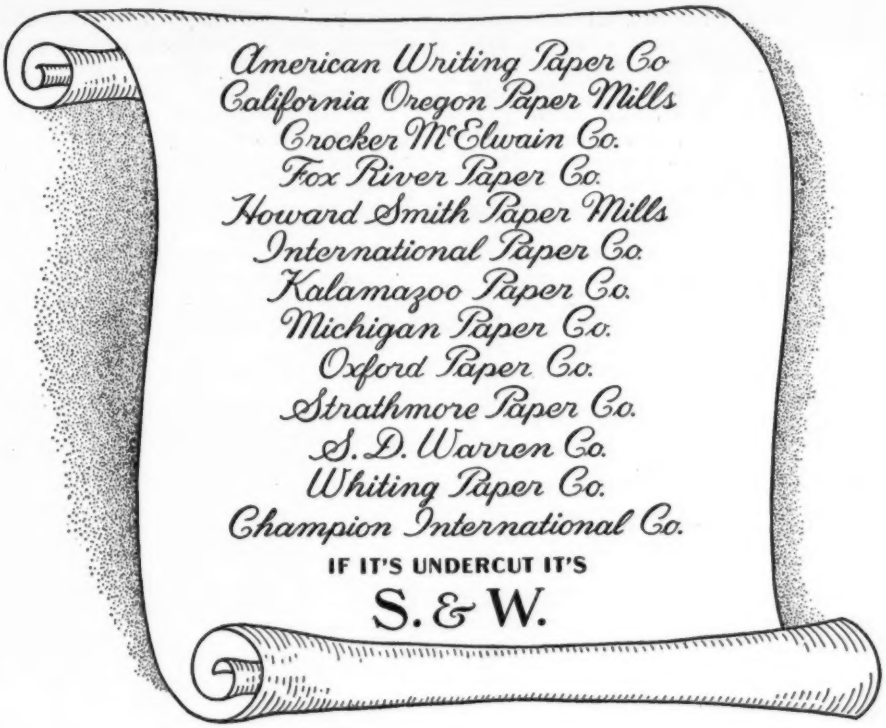
### Article IV. Wages

1. The minimum rate of wages for hourly paid workers covered by this Code shall be as follows:

| | | |
|---|---|---|
| (a) | Male | 35 cents an hour |
| (b) | Female | 30 cents an hour |

provided, however, that where a State law provides a higher minimum wage than is provided in this Code, no such person employed within that State shall be paid a wage below that required by such State law.

2. Piece workers shall be paid at rates which will yield a worker of average skill for an hour's work not less than the minimum rate prescribed.




# Talk with those Mills *that use them*

Every mill mentioned above has installed more than one Undercut. Some have 30 or more in operation for accurately finishing their paper. It is not mere chance that many of these mills are recognized leaders in their section. Talk with them—find out for yourself why shrewd purchasers most often specify Undercuts.

*Send for names of mills near you that use Undercuts, also free illustrated bulletin that describes Dual Control and 12 other features exclusive to users of these trimmers.*

★

## *The* SMITH & WINCHESTER
## *Manufacturing Company*

PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

3. The minimum rates of wages for all other employees except salesmen shall be as follows: not less than $15 per week in any city of over 500,000 population, nor less than $14.50 per week in any city between 250,000 and 500,000 population, nor less than $14 per week in any city between 2,500 and 250,000 population, nor less than $12 per week in towns of less than 2,500 population. Provided, however, that office boys or girls may be paid not less than 80 per cent of such minimum wage, and the number of employees classified as office boys or girls shall not exceed five (5) per cent of the total number of employees covered by the provisions of this section.

4. The minimum wages hereby prescribed shall not in any way be considered as a discrimination by reason of sex and where, in any case, women do substantially the same work or perform substantially the same duties as men, they shall receive the same rate of wages as men receive for doing such work or performing such duties.

5. The wage rates of all employees receiving more than the minimum rates herein prescribed shall be reviewed and such adjustments, if any, made therein as are equitable in the light of all the circumstances, and within ninety (90) days after the effective date hereof, the Code Authority shall report to the Administrator the action taken by all members of the industry under this section.

6. Workers who are physically handicapped are exempted from the provisions of Sections 1 and 3 hereof, but the number of such workers in any class shall not exceed 5 per cent of the total workers in such class.

**Article V. General Labor Provisions**

1. No person under sixteen years of age shall be employed, provided, however, that where a State law provides a higher minimum age, no person below the age specified by such State law shall be employed by the industry within that State.

2. Employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection. No employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing. Employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

3. In mills where labor agreements are now in effect, except for wages and hours of labor recorded herein, all other conditions and terms in these agreements shall not be affected by the provisions of this Code.

**Article VI. Accounting—Selling**

1. The Code Authority shall, as soon as practicable prescribe a standard method of accounting and costing for the industry and submit the same to the Administrator. When it shall have been approved by the Administrator, every member shall use an accounting and costing system which conforms to the principles of, and is at least as detailed and complete as, such standard method.

2. The Code Authority may from time to time present to the Administrator recommendations based on conditions in the industry which will tend to effectuate the operation of this Code and the policy of the Act and in particular along the following lines:—

(a) For the establishment of rules of Fair Trade Practice for the Industry and the codification of its trade customs, and the enforcement thereof.

(b) For the establishment of a standard method for determining the current cost of any product of the industry, and for a requirement that no member shall sell any such product below such cost.

3. Each member shall file with the Code Authority complete lists or schedules of prices and terms and conditions of sale (including all differentials, discounts, trade allowances and special charges) of all products of the industry offered for sale by such member, and shall so file all subsequent changes therein or revisions thereof at least 24 hours prior to the effective date of any such changes or revisions. The Code Authority shall immediately send to each member a copy of such price lists or schedules and terms and conditions of sale and of all changes or revisions thereof as so filed and whenever such changes or revisions shall have been filed by any manufacturer, any member or members may thereupon file, if they so desire, revisions of their lists or schedules or prices and terms and conditions of sale, which shall become effective upon the date when the changes or revisions first filed shall go into effect.

4. Except in fulfillment of bonafide contracts existing on the effective date of the Act, June 16, 1933, no member of the industry shall sell any such products at a price or prices lower than, or upon terms and conditions more favorable than stated in his price list, published as hereinbefore provided.

5. Bonafide export sales shall be exempt from the provisions of Sections 2, 3 and 4 of this Article and from the provisions of the Appendix hereto attached under Article IX, Section 5.

**Article VII. Reports—Statistics**

1. Each member shall prepare and file with the Code Authority at such time and in such manner as it may prescribe, statistics of plant capacity, production, sales in units and dollars, stocks on hand, number of employees, wage rates, employee earnings, hours of work and such other data or information as the Code Authority or the Administrator may from time to time require.

2. Except as otherwise provided in the Act, all statistics, data and information filed in accordance with the provisions of Section 1 hereof shall be confidential and the statistics, data and information of one member shall not be revealed to another member. No such data or information shall be published except in combination with other similar data and in such a manner as to avoid the disclosure of confidential information.

3. The Code Authority shall report to members such statistics as it may deem advisable.

4. The Code Authority shall make and file with the Administration such reports as the Administrator may from time to time require.

**Article VIII. Violations**

1. The failure on the part of any member of this industry to comply with the provisions of this Code or to perform any obligation imposed on him thereby shall constitute a violation of the Code.

2. The Code Authority shall investigate alleged violations of this Code and make reports thereon to the Administrator.

**Article IX. General Provisions**

1. This Code may, with the approval of the President, be amended except as to provisions required to be included therein by the Act.

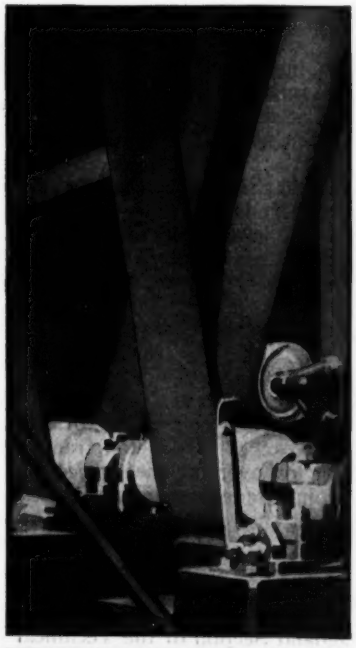
2. If any member of the industry is also engaged in any other industry, the provisions of this Code shall apply to and affect only that part of his business which is included in the industry.

3. The Code Authority may confer with the members

# GOODYEAR = 174 DAYS

# ORDINARY AVERAGES = 41 DAYS

# BEST ORDINARY = 101



**BELTS**
**MOLDED GOODS**
**HOSE**
**PACKING**

**Made by the Makers of GOODYEAR TIRES**

● **A paper mill digester pump. How to belt it most economically, most efficiently. That was the problem up to the G.T.M.—Goodyear Technical Man.**

**Troublesome conditions. Almost constant spillage of water, bad oil leaks from bearings, concrete pillars of foundations almost touch belt and at slightest misalignment of pulleys, belt rubs against concrete. Motor considerably overloaded at times.**

**Previous belt records? Eleven of them did their best—at 41 days per belt average. Best of the lot stood up 101 operating days—poorest, 8 days.**

**Enter the G.T.M.—with an expert knowledge of rubber and a practical experience in paper mill requirements. He analyzes conditions. He recommends a Goodyear COMPASS (Double Construction), 35 feet 7 inches long, made endless, to accommodate 200 motor horsepower, motor pulley of 30 inch diameter, 14 inch face, and driven pulley 20 inch diameter and 12½ inch face, at a belt speed of 3560 feet per minute.**

**What is the record of this G.T.M.-specified Goodyear COMPASS Belt? No less than 174 days to 101—or 41—however you want to figure it.**

**Take this as typical of the longer-lived, cost-reducing performance of Goodyear Mechanical Rubber Goods for the paper industry. Call in the G.T.M.—for what he can save you and make you. Write Goodyear, Akron, Ohio, or Los Angeles, California, or call your nearest Goodyear Mechanical Rubber Goods Distributor.**

THE GREATEST NAME IN RUBBER

**GOODYEAR**

of the industry and the consumers of its product in respect of the stabilization of the industry and the elimination of unfair practices and destructive competitive prices, and may formulate and submit to the Administrator its recommendations to that end. Such recommendations when approved by the Administrator shall have the same force and effect as any other provisions of this Code.

4. The Code Authority shall secure current information concerning the competition in domestic markets of imported news print, and if it shall find that such news print is being imported into the United States in substantial quantities or increasing ratio to domestic production and on such terms or under such conditions as to render ineffective or seriously endanger the maintenance of this Code it shall complain to the President pursuant to the provisions of Section 3 (e) of the National Industrial Recovery Act and petition for suitable restrictions on the importation of such news print.

5. The trade standards and customs covered by the appendix hereto attached, are made a part hereof, and any deviation from them is a violation of the Code.

6. This Code and all the provisions thereof are expressly made subject to the right of the President, in accordance with the provisions of Clause 10 (b) of the National Industrial Recovery Act, from time to time to cancel or modify any order, approval, license, rule or regulation, issued under said Act, and specifically to the right of the President to cancel or modify his approval of this Code or any conditions imposed by him upon his approval thereof.

7. This Code shall become effective on the second Monday after its approval by the President.

**Appendix: Trade Customs and Trade Practices**

1. News print is universally recognized as weighing 32 lbs. to 500 sheets, cut 24x36 inches. It is popularly known as white, cream white or blue white. Any of these or mild variations of them are to be the shades in which news print shall be made and delivered.

2. Every manufacturer shall deliver as news print paper, as nearly as practicable, paper of a basis weigh of 32 lbs. and no less. Five (5) percent over or under specified base of weight shall be considered good delivery. Orders for heavier weight bases (over 24x36—32 lbs. to 500 sheets) shall be furnished at no price concession. News print shall not be sold on a production basis.

3. No news print shall be designated as "Culled" and sold at a reduced price.

4. The billing weight of roll news print shall be the gross weight, including paper and wrappers, less only the weight of cores if returnable cores are used. Gross weight will apply if non-returnable cores are used. Sheet news print shall be billed at the ordered weight unless there is a shortage in excess of 2½ percent, in which event paper shall be billed at the actual scale weight.

5. Terms—net cash United States Funds 30 days from date of shipment; or from date of withdrawal from warehouse in the case of water shipments; or 15th of month for shipments made during preceding month or any other mutually agreeable arrangement which contemplates an approximate thirty day cash settlement. 6% interest shall be paid on all amounts remaining unpaid on due dates. Time of payment may be extended beyond thirty days, provided interest at the rate of 6% per annum is charged after thirty days from date of shipment, or from date of withdrawal from warehouse in the case of water shipments.

6. Returnable cores, either paper or iron, shall be charged to the purchaser at 2 cents per running inch and shall be returned promptly, freight prepaid, to the manufacturer. Cores shall be credited to the purchaser at the invoiced price when a prepaid bill of lading showing the number and sizes of cores returned to mill of manufacturer is received by the manufacturer. Non-returnable cores shall be included in invoice price of paper and shall not be returnable.

7. No allowance shall be made for waste, damage or paper left on cores. In case of claim of any nature applying on any shipment, the manufacturer shall be notified immediately, but no claim shall be allowed for consequential damage.

8. The differential for the customary light tints such as are now used by newspapers in sporting editions and color supplements shall be, in rolls, a minimum of $5.00 per ton over the price of white news print in rolls.

9. Miscellaneous Differentials:

For news print in sheets the differentials shall not be less than those stated in the following schedule:

| | *White* | *Colored* |
|---|---|---|
| For sheets 150 sq. inches and larger, per ton | 5.00 | 10.00 |
| For sheets 72 sq. inches to 149 sq. inches, per ton | 10.00 | 15.00 |
| For sheets 36 sq. inches to 71 sq. inches, per ton | 15.00 | 20.00 |

These differentials shall be with relation to the price of white news print in rolls.

$2.00 per ton shall be charged for skid loading if more than 3,000 lbs.; $3.00 per ton on quantities from 3,000 lbs. to 2,000 lbs.; and $5.00 per ton for quantities of 2,000 lbs. and under.

Press trimming shall be charged for, over the sheet price, as follows:

$1.00 per ton for one side
$2.00 per ton for two sides
$3.00 per ton for either three or four sides

If sheet news is packed in skeleton frames, this charge shall be $5.00 per ton over the sheet price.

10. The foregoing trade customs and practices with respect to news print shall also apply to all other products of the industry.

## New England TAPPI to Meet

The New England Section of the Technical Association of the Pulp and Paper Industry will begin its new season of meetings on Friday evening, September 15th, at the Nonotuck Hotel. Dinner at 6:30 p. m. will be served to those who desire it. The meeting is open to all who may be interested.

Howard W. Morgan, instructor in pulp and paper manufacture, New York State College of Forestry, Syracuse, N. Y., and chairman of the TAPPI Pulp Testing Committee, will present a paper on "Methods of Hydrating Pulp for Strength Testing."

F. K. Becker, Bird Machine Company, S. Walpole, Massachusetts, will give a talk on "Cleaning Pulp Stock."

A large attendance is expected.

## Case Brothers Open New York Office

Case Brothers, Inc., Highland Park, Conn., have established a New York district sales office at 11 West 42nd Street, New York City, with Frank H. Knoll in charge. Mr. Knoll is well known in the trade in the Metropolitan area, where he was, for many years, manager of the paper and board division of the Kelsey-Risden Company.

Since 1868, Case Brothers have made the highest quality genuine pressboards. They also specialize in electrical insulating boards, jacquard cards and many other papers and boards for industrial purposes.

THE SKF GALLERY OF DISTINGUISHED PERFORMANCE USERS:

**VALLEY IRON WORKS COMPANY**

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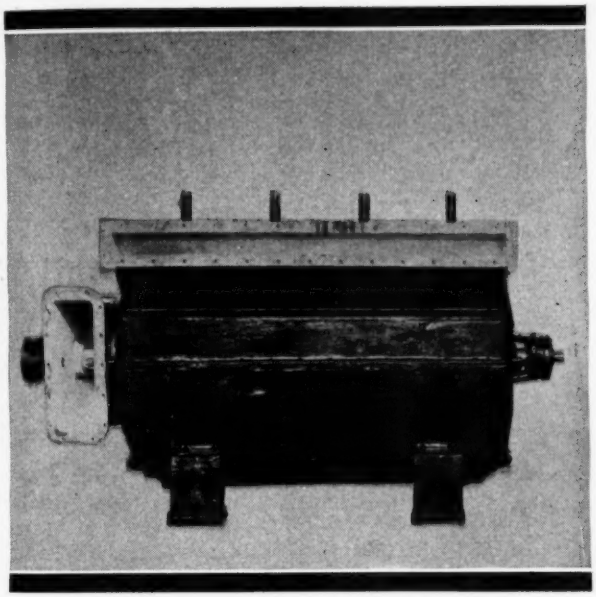

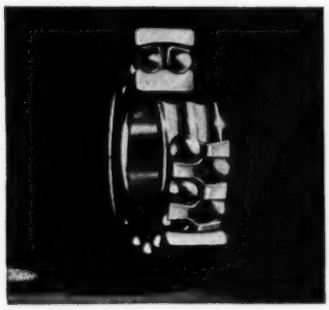

FIFTEEN YEARS . . . and still using SKF Bearings because they give reliable, low cost service. That is the basic reason why SKF's are on the main journals of the Valley Thune Rotary Screen. And the self-aligning feature of these bearings is especially valuable on this type of application . . . an added factor that makes SKF Performance Take Preference Over Price.

SKF Bearings run smoothly, require less power and give years of trouble-free service under continuous operation. No bearing wear, no adjustments to make, and consequently less time lost on the job. These two features also insure maintenance of the rotor in correct position. Adequately housed, water is kept out of the bearings and there is no danger of lubricant washing away.

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**WHERE PERFORMANCE TAKES PREFERENCE OVER PRICE**

● *You may buy a bearing as a bargain but try and get a bargain out of using it, for nothing is apt to cost so much as a bearing that cost so little*

**SKF**
BALL AND ROLLER BEARINGS

# Use of Titanium Pigments in the Paper Industry

By William R. Willets[1]

Until a few years ago clay was the only filler of any great importance in the loading of paper, and, in fact, was predominant likewise as a coating pigment. Later other materials, such as talc, agalite, asbestine (all silicates of magnesium), crown filler, pearl filler (and other forms of calcium sulphate), chalk (and other forms of calcium carbonate), barytes, heavy spar, blanc fixe (and other forms of barium sulphate), and satin white have been used more or less for loading in the beater and for coating.

The introduction of titanium pigments is probably the most recent development in the paper industry, although these pigments have for years found a wide range of usefulness in the paint field, in printing inks, etc., where a durable, neutral white of high opacity and "hiding power" is essential.

### Historical Development

The credit for the discovery of titanium is generally given to William Gregor who in 1791 examined a black sand (now known as ilmenite) near Cornwall, England, and determined that it was composed of the oxides of iron and an unknown element. M. H. Klaproth, in 1795, extracted a new element from the mineral now known as rutile (Boinik, Hungary) and identified it with Gregor's discovery, calling it "titanic earth," from which we have the present derivation of "titanium."

Although until comparatively recently titanium has been considered a rare, or at least an unusual element, it is estimated that it forms about 0.58 per cent of known terrestial matter and in fact only eight elements, oxygen, silicon, aluminum, iron, calcium, sodium, potassium and magnesium, are more abundant. There is only seven times as much iron, five times as much calcium, and three times as much magnesium as there is titanium, which in turn is three times more abundant than carbon, eight times more abundant than barium, and far more abundant than lead, zinc, antimony, tin and copper combined. Of 800 igneous rocks analyzed by the U. S. Geological Survey 784 contained titanium.

Probably the most important ore is ilmenite, which occurs in both rock and sand formations, the important locations being in the United States, Norway, Brazil, Africa and India. Ilmenite is probably mostly ferrous titanate, $FeTiO_3$.

There are three natural titanium oxide minerals, rutile, brookite and anatase, of which only Rutile has any commercial importance. Its composition varies from 90 to 98 per cent titanium, the chief impurity being iron oxides. It is found in sand and rock formations.

Although it was soon discovered that titaniferous ores were prevalent throughout the earth's crust it was not until around 1850 that any commercial applications were attempted, when the discovery of concentrated titaniferous ore deposits in America and Norway stimulated an investigation into their use. A blast furnace was operated in the Adirondacks for several years during the 1850's and an English company was formed around 1860 to import ore from Norway to England where it was smelted. However, even this could hardly be considered a practical application as there were definite prejudices against the presence of titanium in iron ore notwithstanding the work of Rossi and others who demonstrated that ores containing as high as 20 per cent titanium oxide could be made into satisfactory pig iron.

In 1880, J. Barnes discovered the satisfactory mordanting properties of titanium salts in the dyeing of textiles. Barnes continued his work and published his last paper on the subject in 1916.

In the late 1890's, Howard Spence, working on bauxite residues from Heidelburg, discovered the double salt, sodium-titanium sulphate ($Na_2SO_4.TiSO_4.2H_2O$) and from this discovery a number of double titanium salts were developed including the crystalline titanium-potassium oxalate, now commonly used in mordanting leather.

In 1901, M. C. Lamb discovered the use of titanium salts for mordanting leather and in collaboration with the Spence Company took out a patent covering this application. Simultaneously, Car Dreher was independently working along similar lines in Germany, patenting the results of his investigations.

In 1907, E. Knecht introduced the trivalent chloride and sulphate as stripping and discharging agents for the textile industries; they are the most powerful reducing agents known and still find a limited use in this field. E. Knecht and E. Hibbert worked out many analytical methods and published a book on titanium in 1910.

At about the same time commercial manufacture of an iron-titanium alloy was started at Niagara Falls by the Titanium Alloy Manufacturing Company under the Rossi patents for titanium alloys and their use in the purification of steel and other metals. A. J. Rossi associated with the Titanium Alloy Manufacturing Company, was soon joined by L. E. Barton and others in a general research program on titanium. Among the first results was a practical method for extracting titanium oxide from the mineral ilmenite, and the discovery that this oxide, when mixed with oil and spread as a paint, had exceptional hiding power. So far as is known, this is the first use of artifically produced titanium oxide as a pigment in this country. More or less contemporary with this, another group was at work in Norway: G. Jebsen, P. Farup and others discovered the advantages of titanium oxide in paint. Barton soon discovered that titanium oxide precipitated on calcium or barium sulphate to give composite pigments could be prepared more economically than the pure oxide.

A great deal of research work was done and is still being continued on titanium. New pigments are being developed and these as well as the older pigments are finding increasing usage in paints, paper, rubber and cosmetics. New uses are likewise continually found, not only for the pigments, but also for the alloys and salts.

### Manufacture of Titanium Pigments

At first, in the manufacture of composite pigments, ilmenite was fused with niter cake (sodium bisulphate) and coke in an electric furnace. The fusion mass separated by gravity into two layers, iron on top and sodium titanate on the bottom. Most of the iron was removed mechanically and the sodium titanate was leached with dilute sulphuric acid to remove the remainder of the iron; this residue was digested with concentrated sulphuric acid and dissolved in water. The last traces of ferric iron were then converted to the ferrous state by electrolysis or treatment with metallic zinc, and the solution clarified.

Received August 4, 1933.

[1] Member TAPPI, Titanium Pigment Co., Inc., 111 Broadway, New York City, N. Y.

# STEAM ENGINE COSTS REDUCED WITH NEW GARGOYLE SUPER-CYLINDER OILS

*Socony-Vacuum Representative:* BILL • *Chief Engineer of Prominent Paper Mill:* JIM

So the new job isn't going so well, Jim. What's wrong?
Plenty, Bill. Just had my steam-engine cylinders rebored to the tune of $700
Whew-w! What happened?
Oils bought only on specifications couldn't take it. You know, Bill, how long I used Gargoyle 600-W without any trouble . . .
Over 10 years, wasn't it, Jim?
Right. Well, here they make me buy these other oils. They wouldn't listen to me.
Try 'em again, Jim. Remind 'em about the reboring. Tell 'em you must have the new Gargoyle Super Cylinder Oils.
Are these new oils better than 600-W?
They sure are, Jim. They've stood up under the highest temperatures and pressures found in any steam engines made today without any trouble from deposits.
Say, those ARE oils. I'll write headquarters right now.
How's the steam engine behaving these days, Jim?
Wonderful! Bill, this plant has saved money* ever since we put in Gargoyle Super Cylinder Oils.
6 MONTHS LATER

**The facts used as the basis of this advertisement are taken from our files*

The new Gargoyle Super Cylinder Oils have the following cost-cutting characteristics:

**Added Film Strength**—minimizing friction and eliminating blow-by under all pressure and steam conditions.

**Complete freedom from deposit-forming tendencies**—even in modern high-temperature engines.

**Maximum resistance to washing effects of moisture in steam**—even under very wet steam conditions.

**Ready distribution**—spreading quickly and uniformly to where they are needed.

**Absolute uniformity**—each barrel is exactly the same as the next.

**Easy separation from condensate**—assuring freedom from oil in boilers and clean exhaust steam for processing.

Ask any Socony-Vacuum representative to show you interesting performance records made with new Gargoyle Super Cylinder Oils in equipment similar to your own.

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GARGOYLE Lubricating Oils

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NRA WE DO OUR PART

The first development work was done on the production of the composite titanium oxide—calcium sulphate pigment, known as Titanox-C. Later this pigment was somewhat superceded by the titanium oxide-barium sulphate pigment, Titanox-B. Blanc fixe was either formed by a chemical reaction in the titanium solution or separately prepared and suspended in the solution so as to give a ratio of 3 barium sulphate; 1 titanium oxide in the pigment. Upon boiling the titanium was precipitated as a hydrate by hydrolysis on the blanc fixe. The composite precipitate was then filtered, washed, calcined and milled.

In Norway efforts were also directed towards a composite but of a somewhat different composition and by a different process. Ilmenite was digested with concentrated sulphuric acid and the sulphates dissolved in water. Ferric iron was reduced to the ferrous state and the solution clarified. It was then boiled without an extender pigment, such as blanc fixe, and the hydrated titanium oxide precipitated by hydrolysis on boiling. The precipitate was filtered out neutralized with barium carbonate and calcium phosphate added before calcination.

In later years the direct treatment of the ore with concentrated sulphuric acid has largely replaced the fusion process. In Europe the use of the barium base composite (corresponding to the American Titanox-B) has largely replaced the use of other composites.

During the last few years other methods of obtaining titanium have come into use.

In one process the ore is roasted with coal or coke, reducing the iron oxides to metallic iron, which is dissolved by weak acids, by-products of later steps in the process. The residual titanium oxide is digested with concentrated sulphuric acid. A variation of the process involves the solution of iron in an acid ferric chloride and the production of electrolytic iron as a by-product.

In another process the iron oxide in the ore is reduced by roasting with coal or coke and both the iron and titanium chlorinated and distilled as ferric chloride and titanium tetrachloride.

In recent years there has been a demand for a still more opaque pigment and research was carried to the point where a pure titanium oxide could be offered to the trade at a reasonable price.

At present there are three important pigments, all of them depending on the peculiar opaque properties of titanium oxide. These are pure titanium oxide (99+ per cent), Titanox-B (titanium oxide precipitated and calcined on a blanc fixe base in the approximate ratio 1:3), and Titanox-C (titanium oxide precipitated and calcined on calcium sulphate in the approximate ratio 1:2.3). In these composites the particles consist of an extender (barium or calcium sulphate) coalesced with higher refracting titanium oxide, accounting for the exceptional hiding power.

Needless to say, other types of titanium pigments are being developed, some especially for use in the paper industry.

Titanium pigments are extremely inert. Titanium oxide itself will react with strong nitric acid and hydrochloric acid. Strong sulphuric or hydrofluoric acids are required for its solution, and a fusion is necessary to secure a reaction with alkalies. Therefore, titanium pigments will withstand strong conditions of exposure without alteration or discoloration.

Titanium pigments are the most opaque white pigments known. As a result of careful experiment a reputable paper technologist has expressed the opinion that one pound of pure titanium oxide is equivalent to 16 pounds of clay in opacifying effect. This high degree of opacity may be readily understood if one notes that the index of refraction of pure titanium oxide is 2.55 as against 1.55 for china clay.

Titanium pigments have high light reflective values Magnesium carbonate or magnesium oxide have a value of around 98 per cent; titanium pigments of 95 per cent. They, therefore "brighten up the sheet" very considerably when added to paper, as well as increase the opacity.

Because of the excellent color, which is virtually a neutral white, high brightness and opacity, titanium pigments produce clear tones, free from muddiness or grayness.

The small particle size renders these pigments easily held in suspension. This size varies from submicroscopic to about 1 micron, with about 0.2 micron as the mean. The pigments are absolutely grit free. They give excellent printing surface whether used as fillers or coatings.

Titanium pigments find wide application where opacity, whiteness, and brightness are required.

For example, a small amount added to the beater, for catalogue and magazine stocks, will often raise the opacity so markedly that the weight of the sheet can be cut down, and the desired whiteness and brightness still maintained while the opacity is unimpaired or even increased. This lowering of the basic weight will decrease mailing costs appreciably.

The use of these pigments for bonds, books, papeteries and the like will give an increase in opacity, brightness and whiteness otherwise obtainable only by the use of very large amounts of clay, if at all. The development of these qualities through the use of small amounts of filler (as with the titanium pigments) does not decrease the strength or printing qualities of the finished sheet as does the use of necessarily large amounts of clay or other fillers. A much more opaque and bright sheet of tissue may also be made by using a beater addition of titanium pigments.

The exceptional opacity of titanium pigments in oils, waxes and paraffins make them especially advantageous in the body stock of waxed paper as a more opaque and highly colored sheet is obtained after waxing. This results in printing being displayed to much better advantage, greatly enhancing the advertising value of the wrapper. Likewise these pigments greatly improve the appearance of butter and food containers since the carton or box will not show the effect of oil or grease as readily as when other pigments are used.

When titanium pigments are used in the top liner for patent boards, a lighter liner may be used because of the greater opacity thus obtained. The use of a lighter expensive liner with a heavier cheap filler is decidedly advantageous.

A small amount of titanium pigments added to the tub or calender size will result in a brighter and more opaque sheet. Instead of detracting from the printing quality it will improve it, since because of the small particle size and freedom from grit of the pigment, a smooth, uniform surface will be obtained. This uniformity will be optical as well as physical and the printing will consequently show up to greater advantage. The same statement applies equally well when the pigments are used in "surface application" on the wire or at the press roll.

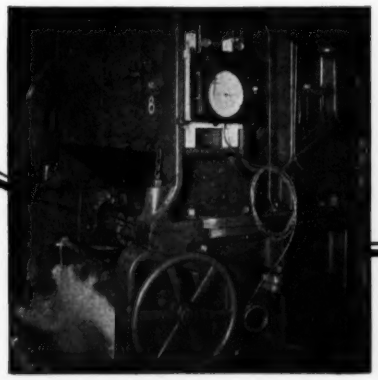
If a small amount of a titanium pigment is added to the coating mix, a much better color and printing surface is obtained. Because of the refractive index of the titanium pigments, halftones and other printed material will be much clearer.

The titanium pigments have already found a definite and important field in the manufacture of printing inks because of their high opacity and hiding power.

**References**

Ryan, L. W., Paint, Oil Chem. Rev. 26. pp. 12, 13, 16a, 16b (June 26, 1930).
Thornton, Wm., Am. Chem. Soc. Monograph No. 33 "Titanium" (1927).

# ON MAGAZINE OR CATERPILLAR GRINDERS... AND POCKET TYPES, *too!*



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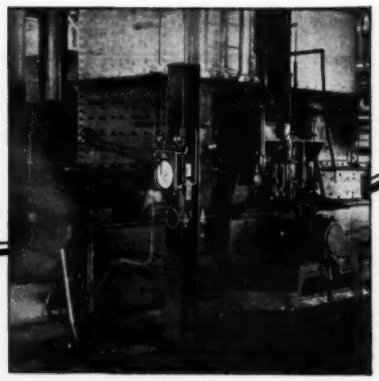

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***Taylor Control of Grinder Temperatures is a sure, money-saving investment. Mills say so themselves.***

MORE than fifty Taylor Systems of Temperature Control on all types of grinders are operating in mills in the United States and Canada. This system was the first successful one of its type ever offered to the paper mill. It has proved its value many times over to mills using it.

Records made by Taylor Control say to you, "This is the easiest, surest way to obtain continuous, close temperature control, and thus to produce more and better pulp with less power at lowest cost."

Taylor Control eliminates hot and cold grinding. It increases stone life. It reduces stone cost per ton. It assures uniform texture, freeness, color and strength of stock.

Have you such precise, automatic control of grinder temperatures in your mill? No? Then you are losing money on lower quality stock and the profits you could gain on uniformly higher grade stock commanding the best prices.

We will give you, without obligation, complete data on this proved Taylor System for your mill. Write or wire Taylor Instrument Companies, Rochester, N. Y., U. S. A., or Taylor Instrument Companies of Canada, Ltd., Toronto, Canada.

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## CANADA'S REACTION TO NRA

With the return of Premier Bennett from London, discussion has been renewed as to the possibility of early consideration being given to the question of reciprocal trade between Canada and the United States. In his first public address after his return Mr. Bennett gave a pretty broad hint that the Canadian Government will not follow the example of the United States and lay down a recovery programme along the lines of the N. R. A., the hint being conveyed in the following statement:

"This country is the fifth exporting country in the world. We must maintain our position as an exporting country. We are competing with every country in the world. To continue to do that must of necessity indicate on our part no experiments in the cutting down of hours of labor and in the raising of rates of pay. I say that because we must maintain our position."

While this indicates the official position regarding Canada's reaction to the operations of the N. R. A. codes, the fact remains that many industries in Canada are directly affected and that quite a number are finding it advisable to adjust themselves to the new influences. Word comes from British Columbia that the lumber industry in the province has already gone on the N. R. A. code. This action was practically forced on the Canadian producers because of the imminence of restrictions which would prevent the export of Canadian lumber produced under any but code conditions. The same situation is facing the pulp and paper industry, it being widely accepted that the Canadian industry must adapt itself to the American code if restrictions against products of Canadian mills are to be avoided.

This brings up the important question as to the application of regulations in the news print division of the pulp and paper industry. Canadian operators have been disappointed at the absence of any signs of price regulation in the new code recently submitted covering news print. It has already been indicated in Montreal correspondence of the PAPER TRADE JOURNAL, the belief prevails in Canada that because of the special international ramifications in the ownership of Canadian news print mills and in the marketing of the product, no action could very well be taken in the matter of price regulation without special co-operation between the United States and Canadian Governments whereby some such arrangement could be effected as establishing a system by export licenses that would permit of the regulation of prices for export to the United States market. Under government regulation of exports through such a policy special discounts and other price-cutting devices would be eliminated. In the Canadian trade there is now a good deal of speculation as to the possibility of some such international system being set up by joint agreement between the respective governments.

Added interest has been given to the subject by the publication of a rumor to the effect that Premier Bennett, as a result of conversation in London with Cordell Hull, U. S. Secretary of State, and with Lord Rothermere has paved the way for some quota arrangement which would enable the orderly marketing of Canadian news print in the United States.

## RESEARCH ON CALGONIZING

The Buromin Company of Pittsburgh, Pa., which has made wide application of molecularly dehydrated phosphates of the alkali metals in water conditioning and washing, has founded an Industrial Fellowship at Mellon Institute for the purpose of investigating broadly the properties of these chemicals and of extending their uses in the industries, in medicine, and in the home. Special attention will be accorded to "Calgon," which is essential sodium metaphosphate.

Dr. Bernard H. Gilmore, who has been selected as the incumbent of this Fellowship, started his research program on June 15. After receiving his Ph.D. at the Ohio State University in 1926, he was a member of Mellon Institute, for a period of five years, as one of the holders of the Fellowship of the Laundryowners National Association, when he added usefully to the knowledge of laundering. In his new post on the "Calgon" Fellowship, Dr. Gilmore will ascertain and define correct procedures of employing molecularly dehydrated phosphates, and particularly "Calgon," intechnology ("Calgonizing"). Since the inception of his work, Dr. Gilmore has found that "Calgon" is of utility in cleaning various constructional materials, including stone, brick, and terra-cotta. In conjunction with the Institute's Smoke Abatement Fellowship, the "Calgon" Fellowship has also evolved a formula for cleaning shrubbery and trees that has been demonstrated to be both effective and safe. "Calgon" has been shown to possess a specific detergent action in these applications. The field of uses for molecularly dehydrated phosphates in the textile and paper

industries will soon be explored. It appears that these chemicals are of special value for dissolving residual calcium soaps and similar compounds as well as for water-softening purposes. It is planned to publish the investigational findings as the researches progress.

## Files Brief Against Processing Tax

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 6, 1933—The American Paper and Pulp Association, through its counsel, Carl E. Whitney, of New York, has filed a brief with the Agricultural Adjustment Administration in opposition to the special processing tax on paper products competing with cotton.

The brief is in connection with the hearing held on processing taxes on commodities in competition with cotton under Section 15(d) of the Agricultural Adjustment Act.

The brief, which is voluminous, takes up in detail competition between cotton and paper bags for the use of various commodities. In conclusion it says:

We have endeavored, in this brief, to establish by available facts and figures, first, that no sufficient grounds exist for imposing the proposed compensating tax on paper products and, second, that even if such a tax were assessed, it would be extremely difficult to collect and would lead to many and serious complications and inequitable situations. It is possible, however, that these difficulties may be overcome by other means.

While we think they have not produced evidence to establish the fact, the cotton manufacturers insist that the processing tax puts them at a disadvantage in their competition with paper. Assuming, for the sake of argument only, that this is so, the remedy appears to lie in the suggested abatement of the processing tax on products competing with paper rather than in attempting to impose an impracticable compensating tax upon the paper products. This view seems to have been adopted by the cotton manufacturers themselves if we correctly interpret the telegram filed by Mr. Elsas as a supplement to his brief. Such a solution would undoubtedly remove all danger of a disturbance of equilibrium of competition, real or anticipated, due to the imposition of the processing tax. Whether or not this is feasible we do not assume to say, but we suggest it in view of the discussion at the hearing and the favorable reaction of those advocating the tax now proposed.

## Bids on Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 6, 1933—The Government Printing Office has received the following bids for 100,500 sheets of buff gummed paper: Virginia Paper Company, Inc., at $8.37 per M sheets; Whitaker Paper Company, $10.15 and $9.51; Mathers-Lamm Paper Company, $10.09; R. P. Andrews Paper Company, $9.96; Reese & Reese, Inc., $9.37; Barton, Duer & Koch Paper Company, $9.65; and Walker-Goulard-Plehn Company, Inc., $10.80.

The following bids were also received for 21,000 sheets of yellow gummed paper: Virginia Paper Company, at $8.37 per M sheets; Whitaker Paper Company, $10.80 and $10.05; Mathers-Lamm Paper Company, $10.55; R. P. Andrews Paper Company, $10.38; Reese & Reese, Inc., $9.90; Barton, Duer & Koch Paper Company, $10.05; and Walker-Goulard-Plehn Company, Inc., $11.10 less 2 per cent.

## Hearing on General Code Sept. 14

The following is the official call for the hearing on the General Code for the Paper and Pulp Industry at Washington Thursday, September 14:

The above industry, as represented by the American Paper and Pulp Association, claiming to represent 90 per cent of the total volume of the industry as defined by the Code, has submitted a proposed code of Fair Competition, copies of which are available at the office of the National Recovery Administration, Room 3316, Department of Commerce, Washington, D. C.

The Code for the American Paper and Pulp Industry in its present form merely reflects the proposals of the above mentioned industry, and none of the provisions contained therein are to be regarded as having received the approval of the National Recovery Administration as applying to the Industry.

Notice is hereby given that a Public Hearing on this Code will be conducted by the Administrator, beginning at 10:00 A. M., Thursday, September 14, 1933, in the Caucus Room, New House Office Building, Washington, D. C., and continuing until completed. An opportunity to be heard (either in person or by duly appointed representative either by appearance or by sending a written or telegraphic statement) will be given to persons or groups who can show a substantial interest as workers, employers, consumers or otherwise, in the effect of any provision of the proposed code.

Those wishing to be heard must comply with the following simple requirements:

(1) A written or telegraphic request for an opportunity to be heard must be filed before noon on Wednesday, September 13, 1933, with the Administrator, Room 4221, Department of Commerce, Washington, D. C.

(2) Such request shall state the name of (a) any person seeking to testify in the hearing, and (b) the persons or groups whom he represents.

(3) Such request shall contain a statement setting forth without argument, a proposal: (1) for the elimination of a specific provision of the Code; or (2) a modification of a specific provision, in the language proposed by the witness, or (3) a provision to be added to the Code, in language proposed by the witness.

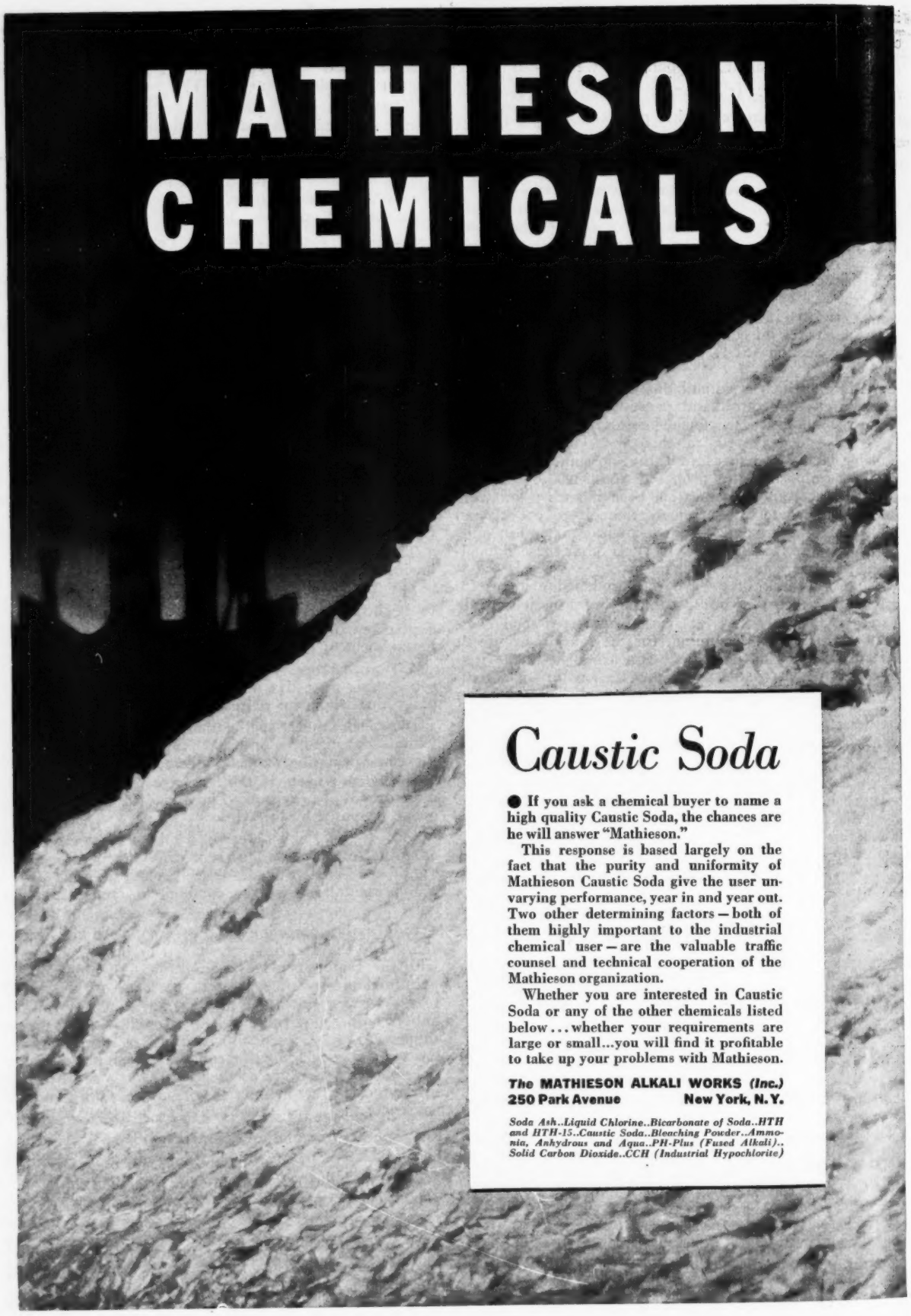
(4) At the Public Hearings, all persons are regarded as witnesses, and shall present orally facts only and not argument. Written briefs or arguments may be filed, but oral presentations will be confined to factual statements only.

(5) In the discretion of the Deputy Administrator in charge of the Hearing, persons who have not complied with the requirements of paragraph (1), above, may be permitted at any time prior to the close of the Hearing to file written statements containing proposals for elimination from, modifications of, or additions to the code supported by pertinent information or argument. Such written statements must be condensed as much as possible.

Public Hearings are solely for the purpose of obtaining in the most direct manner the facts useful to the Administrator, and no arguments will be heard or considered at this time. Representation of interested parties by attorneys or specialists is permissible, but it is not to be regarded as necessary. Industry, workers and the consuming public will be represented by special advisers employed by the Government.

W. W. PICKARD,
Deputy Administrator.

HUGH S. JOHNSON,
Administrator.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

# Emulsified Paraffin Wax Sizes*

By R. M. Cobb[1], D. S. Chamberlin[2] and B. A. Dombrow[3]

**Abstract**

*An emulsifying base has been prepared which makes it possible to produce wax size emulsions in ordinary paper mill equipment, a hand paddle providing sufficient agitation.*

*These emulsions are characterized by unusual uniformity, extremely fine particle size, stability in hard water at all temperatures and stability over a wide pH range. Their preparation is described, and points of importance in their application are discussed in some detail.*

The preparation of paraffin wax size emulsions has hitherto called for high speed mechanical agitation because the emulsifying agents used have not been specifically designed for the emulsification of paraffin and have not materially assisted in the actual breaking up of the wax phase into minute droplets. The products have had all the characteristics of mechanical dispersions. The initial investment for equipment has been high and the power consumption during manufacture has added appreciably to the cost of the wax size. If purchased already prepared, the freight on water increased the cost still further.

An emulsifying base which acts as a specific to disperse paraffin wax into a perfectly stable emulsion with only hand agitation has been prepared and is herein described.

## The Problem of Emulsifying Wax in Water

### Work Required to Disperse Wax in Water:

Without the presence of an emulsifying agent, emulsions of the oil-in-water type can be prepared only by mechanical agitation, and according to Lewis *(4)*, only up to a maximum concentration of 2 per cent. To prepare concentrated stable emulsions of oil and water, the presence of a third substance, the emulsifying agent, is essential.

Furthermore, Thomas *(10)* states that to disperse one liquid in another in the form of an emulsion requires doing an amount of work upon the system equal to the product of the interfacial tension multiplied by the increase in surface.

$$W = \gamma \Delta S$$

Where $W$ = work
$\gamma$ = interfacial tension oil-water
$\Delta S$ = increase in surface of oil due to formation of emulsion droplets.

The original surface of the oil being negligible, the increase in surface $\Delta S$ which results when wax or oils are emulsified in water, is related to the total volume of the oil V and the diameter of the emulsified oil droplets d, as

$$\Delta S = \frac{6V}{d}$$

$$W = \frac{\gamma 6V}{d}$$

That is, the finer the emulsified oil droplets become, the greater is the power required to bring about that dispersion, and the greater the interfacial tension between the oil and the water phase, the greater also the power consumption to effect emulsification by mechanical means.

### Mechanical vs. Spontaneous Dispersion of Wax.

While the calculated energy to disperse wax in water is not high, the efficiency of the application of shearing forces to liquids is very low. The process of emulsifying liquids against the opposition of high interfacial tension, therefore requires great expenditure of energy, such as is available in colloid mills.

To reduce the amount of energy required for emulsifying the paraffin and yet obtain small droplets the emulsifying agent used must lower the interfacial tension between the water and paraffin to a marked degree. Emulsions can be made by the application of generous amounts of energy if the interfacial tension between paraffin, and dispersion medium is as low as 10 dynes, but Harkins & Zollman *(2)* find that spontaneous emulsification requires the lowering of interfacial tension to not more than 1 dyne.

To enable the preparation of an emulsion with hand paddling as the source of energy, therefore, an emulsifying base has had to be developed which will reduce the water-paraffin interfacial tension to 1 dyne or less.

### Specific Nature of Emulsifying Base.

While measurement of interfacial tension between an oil, or wax and water indicates whether or not spontaneous dispersion is possible, the equally important consideration of the number of parts of oil or wax that can be spontaneously dispersed by one part of emulsifying base must also be determined.

We may consider that the emulsifying agent forms a stabilizing shell around the oil or wax droplets. The polar or water soluble part of the molecule in the active emulsifying agent dissolves in the water, and the non-polar or oil soluble part of the molecule dissolves in the oil. Obviously the ratio of emulsifying base to oil which provides

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a stable emulsion will be governed, first by the structural compatibility of the groups in the non-polar end of the emulsifying molecules with those in the wax or oil, and second by the water solubility of the polar end of the emulsifying molecules.

The force tending to pull the combination of oil and emulsifying base out of the water phase and thus break the emulsion is reduced by the ability of the non-polar groups of the oil to fit into the non-polar groups of the emulsifying base and lessen the pull upon the polar groups that are dissolved in water. Thus it is evident that to carry effective quantities of wax or oil, an emulsifying agent must not only reduce the interfacial tension between the oil and aqueous phases, but it must also be specifically designed so that its active molecules conform to the molecular structure of the wax or oil to be emulsified.

For this reason an emulsifying agent which is specifically designed to emulsify a hydrocarbon such as paraffin will not satisfactorily emulsify carnauba wax, which as an ester structure, being, according to Lewkowitsch, mainly melissyl (myricyl) cerotate (*5*).

A proper emulsifying agent for paraffin must also form a tough viscous shell about the wax droplets so that they will not unite when crowded together. The smaller the droplets the less viscous need this shell be.

### Interfacial Tension Between Emulsifying Agents, Base and Paraffin

The interfacial tension between this specific base dispersed in water, and paraffin was measured by the method described by Traxler and Pittman (*11*). Also, the interfacial tensions of other emulsifying agents and paraffin were measured by the same method.

Twenty per cent of water was added to the emulsifying base, and the mixture heated to 95 deg. C., in a shallow flat dish.

The ring of the Du Nouy tensiometer was brought to balance in the surface of the base mixture, and paraffin at 95 deg. C., was poured down the sides of the dish.

A slight movement of the ring, representing a pull of less than 0.5 dyne, caused rupture, indicating that the interfacial tension between base and paraffin was reduced to the range where spontaneous emulsification occurred.

By the same method, the interfacial tensions between molten paraffin and other dispersion media were determined at 90-95 deg. C.

| Aqueous Medium | $\gamma$ |
|---|---|
| Tap water | 23.0 dynes |
| 6 per cent rosin solution (70 per cent neutral rosin) | 3.5 dynes |
| 10 per cent ammonium Linoleate | 2.1 dynes |
| 80 per cent specific paraffin base | 0.5 dyne |

### Ratio of Specific Emulsifying Base to Paraffin

The standard for satisfactory emulsions was taken to be uniform dispersion of paraffin in droplets 0.5 $\mu$ diameter and no separation of 20 per cent emulsion in 24 hours.

The relationship between wax: base ratio and degree of dispersion is shown below:

| Wax: Base Ratio | Droplet Size | Time for Creaming |
|---|---|---|
| 3:1 | 0.3$\mu$ | $\infty$ |
| 4:1 | 0.5$\mu$ | $\infty$ |
| 6:1 | 1.0$\mu$ | 48 hours |
| 10:1 | 3.0$\mu$ | 6 hours |
| 19:1 | Clumps | Immediate |

The ratio of 4 parts of scale wax, m.p. 120 deg. F., to 1 of the specific paraffin base was adopted as standard for paper work.

### Preparation of Emulsion by Method of Inversion.

Since the interfacial tension between paraffin and a mixture of water and base is reduced to 0.5 dynes a method must be adopted in preparing the emulsion which will take advantage of that reduction in surface energy of the water. The energy available as a result of the reduction of interfacial tension should be used as the driving force to get the paraffin into a fine state of division.

This energy may be evolved most conveniently by resorting to the inversion method of emulsification. As the principle is of theoretical and practical value, it will be described in the following paragraphs.

Illustrative Method:

1. 80 parts of paraffin are heated to 100 deg. C., with 20 parts of soluble oil base.
2. 20 parts of water are heated to 100 deg. C., and added to the base with thorough stirring.

At this stage the oily mixture is clear and free from turbidity. Examination under the microscope shows the characteristic structure of paraffin, with the water dispersed in coarse droplets (about 5$\mu$) mostly along the crveice lines between individual paraffin crystals.

3. 20 parts more of water at 100 deg. C. are added to the mixture with thorough stirring.

At this stage the oily mixture is turbid. Microscopic examination still shows the paraffin structure; the water has started to widen the fissures between crystals and the water is present in coarser droplets than before.

4. 60 parts of water at 100 deg. C. are added very rapidly, with agitation, to the mixture.

By adding the water rapidly, all energy released by reduction of the interfacial tension of water to 0.5 dynes is available, the weakened paraffin structure collapses and the resulting emulsion consists of droplets approximately 0.5$\mu$ in diameter. The function of the paddle is not to do the actual work of breaking up the paraffin into droplets, but merely to incorporate the water quickly into the mix and get the work of dispersion under way.

If the water is added slowly in the 4th step, the emulsifying base merely continues to hydrate and form a water-in-oil emulsion, so that spontaneous emulsification of the wax does not occur.

5. Add 300 parts of water at 70 deg. C., with stirring.

At 50 per cent concentration the droplets are fine but not widely separated and they will in time unite. Further dilution gives them room to go into Brownian movement without growing together.

The principles employed in this inversion have been discussed in interesting detail by Quincke (*6*) in 1888, and also by Roon and Oesper (*8*). Thomas' (*10*) article contains some beautiful photomicrographs taken by Dr. Wm. Seifriz at different stages of the inversion of a water-in-oil to an oil-in-water emulsion.

## Properties of the Spontaneous Emulsions

### Particle Size.

The particle size of these spontaneous emulsions is uniform and the diameter less than 0.5 $\mu$ (.00005 cm.). Thin films, as those tapped out beneath a cover glass on microscope slides, are intensely blue as a result of this small particle size.

### Stokes Law as Applied to Stability of Emulsion.

Stokes law relates the velocity of separation of particles in a dispersion to the size of the particle, the viscosity of the dispersion medium, and the densities of the two phases.

Using Robinson's (*7*) suggested modifications, the rate at which the wax will cream out of one of these spontaneous wax dispersions can be calculated.

$$V = \frac{2r^2(s - s_1)g}{9\eta}$$

Where $V$ = rate of creaming in cm/sec.
$r$ = radius of a spherical particle = .25$\mu$
$s$ = density of particle = .97
$s_1$ = density of emulsion = .98
$g$ = 980 (gravity constant)
$\eta$ = viscosity of liquid = 1.1

Aside from effects of age on the size of the particle, it would take 25.6 years for the average particles of this emulsion to rise 1 cm. from the bottom of the container, leaving the water at the bottom clear. In the ordinary life of the emulsion there will therefore be no separation nor creaming due to gravity effects.

### Stability to Hard Water and High Temperature.

The wax emulsion is stable to 300 p.p.m. $CaCl_2$ solution over the temperature range 10-100 deg. C., and in concentrations of from .05-20 per cent solids.

### Stability Over Wide pH Range.

The emulsion is stable in ordinary concentrations over the pH range 3.0-10.0. The lower pH must be obtained by use of acid; alum precipitates the emulsion, as it does in the beater.

### Relative Cost.

Since the emulsifying base is virtually water-free, and

low priced scale wax is obtainable in the vicinity of most paper mills, saving in power consumption is augmented by saving in freight. The production of emulsions by this method therefore supplies wax size at very low cost.

**Wax Size in the Paper Mill**

There are three claims frequently made for wax sizes which have been briefly investigated. In presenting the following conclusions, products from different manufacturers are drawn upon for comparative data. Such commercial products as rosin size, a spontaneously prepared all-wax emulsion, a wax-rosin size and another all-wax emulsion have been used in this work.

The statement has frequently been made that some of the virtues of wax-rosin and all-wax sizes are due to the fact that such sizes have a finer state of division than ordinary rosin size.

As inspection of the accompanying photomicrographs, taken at 1335 diameters will show, in reality it is very difficult to resolve rosin size in the microscope and its particles are much finer than any wax size particles, probably less than 0.1 $\mu$ (.00001 cm.) (Fig. 1). The spontaneously dispersed size is very fine and does approach rosin size in degree of dispersion, (Fig. 2). Other examples of commercial all-wax and wax-rosin sizes are shown in Figs. 3, 4, and 5. Incidentally, the photomicrograph in Fig. 4 is of that size whose sponsors frequently state that one of the virtues of wax-rosin size is a finer state of division than that of rosin size.

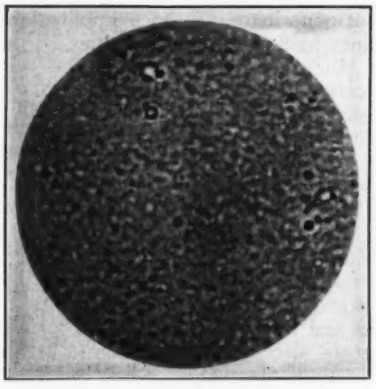

FIG. 1.
**Commercial Rosin Size. 1335 Mags.**

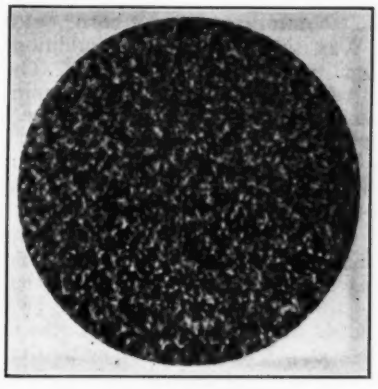

FIG. 2.
**Spontaneously dispersed all-wax size. 1335 Mags.**

SIZING PROPERTIES OF WAX SIZES.

The claim is also frequently made that wax and wax-rosin sizes are more efficient at low temperatures than all-rosin sizes, because the wax content lowers the melting point of the sizing material.

Contrary to this claim, it has been found that the efficiency of wax and wax-rosin sizes is more dependent upon high temperature than that of rosin sizes alone.

It was found that wax sizes gave little sizing if the hand sheets were dried at room temperature but that rosin did impart water resistant properties at room temperature. Rosin continued to be superior to wax and wax-rosin combinations until a temperature of 80 deg. C., was maintained, at which point wax and wax-rosin sizes were as effective as rosin sizes, pound for pound. Even when sheets containing wax or wax-rosin sizes were dried under tension overnight in an oven at 70 deg. C., they were less well sized than similarly dried all-rosin sized sheets.

While the experimental method employed was so unorthodox that it will not be outlined here, and the facts for that reason need further substantiation, the results obtained are confirmed by mill experiences with wax size. With plenty of drier capacity and hot calender rolls addition of a suitable percentage of wax size to the rosin size will often double the water resistance of a sheet without destroying its flexibility. On the other hand, where high drying temperatures can not be obtained disappointment follows use of wax size to get increased water resistance.

According to Schutz & Klanditz (*9*), basic aluminum resinate has been found to be the true sizing agent and it does not flux on the driers. Wax must flux to size the fibers and it would therefore be affected more by temperature than would rosin sizing. If this is true, claims that wax size is effective at low temperatures may therefore lead to incorrectly planned trials and result in such comments upon wax sizing as were presented at the New England Section of the T.A.P.P.I. at Holyoke in May, 1933.

Furthermore, the finer the wax droplets in the emulsion as applied, and the more stable the size before precipitation with alum, the less difficulty there ought to be in flowing the wax out by heat and pressure into an effective sizing film.

SIZING AT HIGH pH.

The efficiency of all-wax and wax-rosin sizes depends upon the pH at which the size is set and the pH at sheet formation as much as does the efficiency of rosin size. This is contrary to the earlier claims for wax sizes but

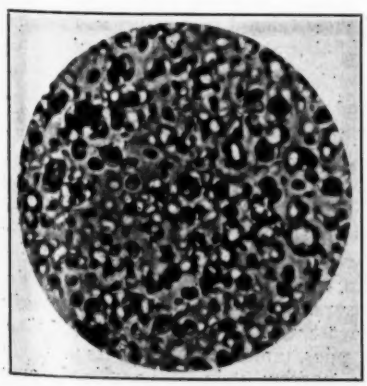

FIG. 3.
**Commercial all-wax size A. 1335 Mags.**

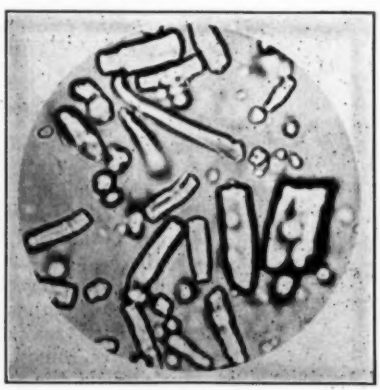

FIG. 4.
**Commercial wax-Rosin Size A. 1335 Mags.**

FIG. 5.
**Commercial wax-Rosin Size B. 1335 Mags.**

the laboratory results are borne out by plant experience.

Wax size may be set by addition of alum in sufficient quantity to bring the pH to 4.4. Once set, the stock may be brought to more alkaline condition through the addition of sodium aluminate as in the methods described by Curtis (*1*) and Healy and Dyer (*3*). The water extract will still be clear, even at pH 10, showing that the size is still set; but the sizing of the sheet as shown by water resistance will be lower at a higher pH than it is at 4.4.

Wax sizes may also be set by bringing the stock down from a higher pH to a pH of 6.8. Some sodium aluminate may be necessary to provide sufficient total alumina to set the size. The water extract will be clear when the size is set, but the sizing efficiency of all-wax sizes and wax-rosin sizes at pH of 6.8 is as low as that of rosin size at the same pH. At this high pH, adjustment of total alumina content with sodium aluminate and alum is not altogether satisfactory.

ADVANTAGES OBTAINED BY USE OF WAX SIZE.

In view of the foregoing statements, the advantages to be derived from use of wax size narrow down to the following:

1. Improved finish and flexibility.
2. Greatly improved quality feel.
3. Increase in water-resistance without loss of flexibility if wax size is properly set at the right temperature.
   (a) For butcher's and other water-resistant papers.
   (b) For coating stock.
4. Improved printing quality, due in part to finish and in part to ink-resistance of paraffin wax.

SPECIALTIES.

Besides the use of an emulsified wax in beater sizing, it can be combined with starch, casein, latex, etc., for surface application or impregnation in the manufacture of specialties.

### Conclusions

The development of a base with which paraffin wax can be readily emulsified may be considered a step forward in the easy application of wax to paper.

While the technical man has been handicapped in the utilization of wax size by the earlier claims for the material which have not been substantiated by experience, there is a real place for wax size in paper technology. All applications are separate problems, some simple, some rather complex. It is hoped that the frank discussion of the merits and limitations of wax sizes in general will give groundwork for a start to those who have had no experience with them, as well as interesting those who are looking for improved methods and lowered costs in the application of wax to paper.

### Acknowledgment

The authors wish to express their appreciation to Dr. Karl Steik and Dr. Julius Muller of the National Oil Products Co. for valuable suggestions, and to Mr. Philip Gravelle of South Orange, N. J., who made the photomicrographs.

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# Some Factors Affecting Interweb Adherence of Single Plies Used In Laminated Sheets*

By R. H. Doughty[1] and P. K. Baird[2]

### Abstract

*In a study of the factors affecting the magnitude of interweb and intraweb strengths of papers and paperboards, it has been shown that:*

*1. The adherence within a web (intraweb strength) is independent of the pressure under which the web is pressed.*

*2. The interweb strength of a ply decreases with increase in the pressing pressure on the webs, and increases with increase in the pressure under which the webs are joined.*

*3. Webs pressed, dried, resoaked, pressed, and dried together are joined much more weakly than if they had not previously been dried. The intraweb strength is also weakened by this treatment.*

*4. The interweb strength approaches the intraweb strength as a limit.*

*5. Wet webs cannot be made to adhere appreciably under a joining pressure less than that under which they were previously pressed.*

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[2] Member TAPPI, senior chemist, Forest Products Laboratory.

As a result of the researches at the Forest Products Laboratory on the relation of sheet properties to fiber properties in paper *(1)*, interest was stimulated among members of the pulp and paper industry as to the significance of the control of solid fraction in the construction or design of laminated sheets. Accordingly the tests reported here were undertaken to show certain basic sheet processing effects and their related properties as exhibited in the manufacture of laminated papers or paperboards.

### Material and Preparation of Sheets

A number of sheets (webs) of a slightly beaten unbleached sulphite pulp were made on a sheet machine, and several of these were wet-pressed at each of several pressures, designated hereafter as "pressing pressures." Pairs of these pressed webs were placed together, while still wet, and pressed together at each of several pressures, designated as "joining pressures," to form plies. Other webs were dried, soaked in water for different lengths of time, and pairs joined into plies under several pressures. In making up the plies, a narrow strip of paraffined paper was placed between the webs along one edge, facilitating their separation for testing. The plies thus formed were

then tested for interweb adherence. The individual webs were also split into two laminae, and the intraweb adherence determined.

### Method of Test

The test method used was based on a procedure often employed to determine the interweb strength of paper for sanding belts and similar purposes. The apparatus used in making the tests was simple and rather crude in design, consisting in the main of an ordinary triple beam balance, but it gave quite reproducible and presumably accurate results.

The pan of the balance was replaced by a weight, and a small hook was hung from the pan support. Strips 15 mm. in width were cut from the test plies, and separation of the webs started with the aid of the paraffined paper strip. One web was fastened to the hook, the other held in the observer's fingers, and the force just necessary to propagate separation of the plies was determined. This force was determinable within 3 per cent without difficulty, and proved to be very nearly constant along the length of the test strip. It is assumed for the purposes of this work, that this force is some fairly simple function of interweb strength.

### Experimental Results

The results of the tests made are presented in Tables I, II and III, and Figs. 1 and 2.

The data contained in Table I show the relation between interweb strength and pressing pressure and joining pressure for freshly made webs and for those dried and re-

TABLE I

RELATION BETWEEN PRESSING PRESSURE, JOINING PRESSURE, AND THE INTERWEB STRENGTH OF PLIES

| Pressing pressure on webs Lbs. per sq. in. | Moisture content of webs before joining Per cent | Force required to separate 15 mm. wide strips of webs joined under pressures of— 20 lbs. per sq. in. Grams | 75 lbs. per sq. in. Grams | 200 lbs. per sq. in. Grams | 500 lbs. per sq. in. Grams |
|---|---|---|---|---|---|
| 2 | 85 | 24 | 26 | 24 | 33 |
| 20 | 78 | 4 | 6 | 15 | 20 |
| 75 | 68 | * | 5 | 10 | 14 |
| 200 | 61 | * | * | 3 | 4 |
| 500 | 55 | * | * | * | 1 |
| | Webs dried, resoaked 15 min., joined and dried | | | | |
| 2 | 87 | 3 | 3 | 8 | 10 |
| 20 | 79 | * | * | 1 | 4 |
| 75 | 76 | * | * | * | 3 |
| 200 | 71 | * | * | * | * |
| 500 | 70 | * | * | * | * |
| | Webs dried, resoaked 1 week, joined and dried | | | | |
| 2 | .. | .. | .. | 7 | .. |

* Indicates the value was indeterminate; that is, the plies did not adhere at all, or separated with less than 1 gram force.

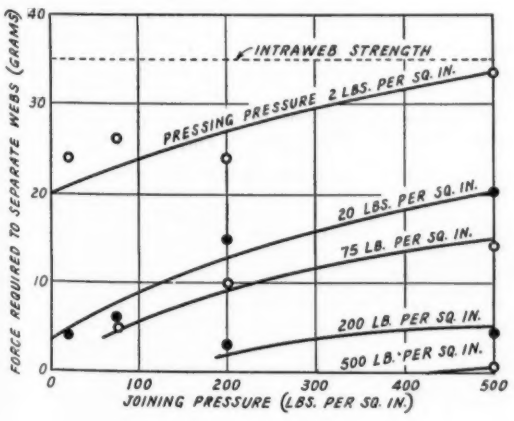


FIG. 1.

Interweb strength for several pressing pressures as a function of joining pressure.

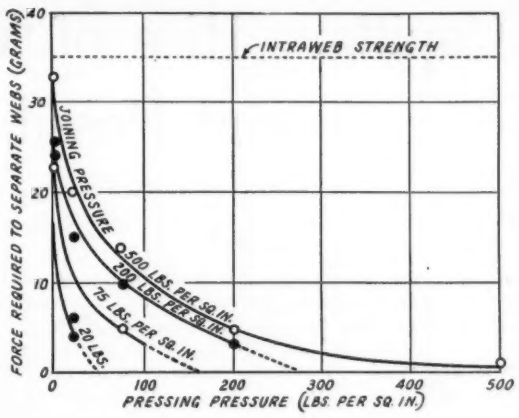


FIG. 2.

Interweb strength for several joining pressures as a function of pressing pressures.

soaked for two different lengths of time. The values obtained from the freshly made webs are plotted in Fig. 1 to show how the interweb strength varies with joining pressure for each of several pressing pressures. Fig. 2 shows the strength obtained at several joining pressures, as a function of pressing pressure.

Table II presents the intraweb strength, which is practically constant regardless of pressure applied, and appears to be the limiting value which the interweb strength approaches. For comparison some values on commercial boards are contained in Table III. All these values are higher than those found for the experimentally made webs, probably because of differences in furnish and in the weight of the boards.

TABLE II

INTRAWEB STRENGTH VALUES

| Force required to separate a— | Pressure on wet web in pounds per square inch 0 | 20 | 75 | 200 | 500 |
|---|---|---|---|---|---|
| | Grams | Grams | Grams | Grams | Grams |
| Normal web | 35 | 32 | 35 | 37 | 34 |
| Dried, resoaked and redried web. | 5 | .. | .. | .. | .. |

TABLE III

INTERWEB STRENGTH OF MILL SAMPLES OF COMMERCIAL CYLINDER BOARD

| Class of board | Force required to separate webs Grams |
|---|---|
| Uncalendered motor separator, rag stock | 100 |
| White single-coated news board | 100 |
| Oyster pail board | 150 |
| Bottle stopper board | 80 |
| Single-lined news board | 80 |

### Discussion of Results

The foregoing tests demonstrate how the interweb adherence can be controlled over a wide range by means of the forming, couching, and pressing conditions. The intraweb strength over a wide range is independent of wet pressing, and of solid fraction. It therefore deserves study as a fundamental property of fibers or sheet formation. It is recognized in this connection that the relation between the force applied to the ends of the strips in the test method used and of the actual tensile strength of either the intraweb or interweb bond is conditioned by the angle of separation of the members at the point of contact, and therefore by the thickness and modulus of flexural rigidity of the members separated.

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# Capillary Rise of Water in Fibrous Sheets and Possible Applications

By F. A. Simmonds[1]

**Abstract**

*The time-law governing the rise of liquids in pulp and paper sheets is illustrated theoretically and experimentally. Its use to determine the effective capillary diameters parallel to the upper and lower surfaces in both machine directions is described. A possible application of the swelling velocity coefficient of pulp for predicting the rate of hydration in water during beating is suggested. Possibilities for further investigation are indicated.*

One of the well known tests for determining the relative absorbency of blotting papers and paper boards is that known as the Klemm test. This test depends upon the fact that, due to capillary action, various liquids will rise in strips of papers and boards when the ends of the strips are immersed vertically in the liquids. The absorbency of the paper is indicated by the height in millimeters to which the liquid rises in a given period of time, usually 10 minutes.

The work reported in this article was undertaken with the objective of adapting the Klemm test as a means of measuring the effective capillary diameter parallel to the upper and lower surfaces of certain types of pulp and paper sheets.

A knowledge of the effective capillary diameter in paper or board sheets will have a direct application to pulp and paper research if it can be related to the fiber orientation or structure of the sheet. Baird and Hrubesky *(1)*[2], by an application of Stamm's *(11)* apparatus, have devised a method for determining the effective capillary diameter perpendicular to the upper and lower surfaces of fibrous sheets. Since methods are now available for measuring the effective capillary diameters both perpendicular and parallel to the sheet surfaces, it will be possible to investigate the relation of that property to other sheet properties.

## Historical

In 1906 Bell and Cameron *(2)* reported a study of the movement of liquids in such capillary systems as obtain in soil and blotting paper. From Poiseuille's formula describing the flow of liquids through tubes of constant length, they deduced a formula, $y^2=kt$, to describe the rate of movement of a liquid in a horizontal capillary tube under a constant head. In this equation $y$ is the length of the tube filled with liquid, $k$ is an empirical constant, and $t$ is the time required for the liquid to move to the end of the tube. In their subsequent experiments using different capillary tubes and such liquids as water, benzene, and alcohol, they found good agreement between the observed values and those calculated by means of the foregoing formula. When the movement of liquids into such capillary systems as dry soil and blotting paper was studied, a relation expressed by the formula, $y^n=kt$, was observed. The value of $n$ in these systems averaged 2.3.

In 1908 Ostwald *(9)* reported an empirical equation giving the relation between the time and capillary rise of pure liquids. This equation was stated:

$$h = K \cdot t^n$$

or

$$h^{\frac{1}{n}} = k \cdot t$$

where $h$ is the height and $n$ and $k$ are constants.

Later, R. Lucas *(7)* repeated some of Ostwald's work using various liquids and filter papers. He found the values for $n$ to be fairly constant ranging from 0.424 to 0.50. In addition, he extended the previous attainments by deriving a theoretical foundation for the equation and indicating what significance this derivation attached to its members.

## Current Experimentation

As a part of an examination of some commercial paperboards *(4)*, the Klemm test was used at the Forest Products Laboratory as an absorbency test. The materials used were commercial cartridge paperboards, blotting papers, and test sheets of unbeaten sulphite pulp. A strip 15 mm. wide and 200 mm. long was cut from the sample in the machine direction *(8)*. This strip was then suspended beside a millimeter scale so that a 3 mm. length of the strip extended below the surface of water in a dish. The height of rise of the water in millimeters per minute was then noted. This procedure was repeated using a strip cut across the machine direction of the sample.

The data thus obtained are recorded in Table I and plotted on a logarithmic scale in Fig. 1. The data were so plotted in order to illustrate that they represent parabolic curves and that it is reasonable to draw all of the curves so that the slopes are equal. From these results the constants of the equations and the effective capillary

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[2] Italic numbers in parentheses refer to "Literature Cited" given at the end of the article.

TABLE I.—THE CAPILLARY RISE OF WATER IN STRIPS OF PULP AND OF PAPER SHEETS[1]

| | Cartridge A— | | Cartridge B— | | Cartridge C— | | Cartridge D— | | Cartridge E— | | Blotting A— | | Blotting B— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | In machine direction (Curve 1) | Across machine direction (Curve 2) | In machine direction (Curve 3) | Across machine direction (Curve 4) | In machine direction (Curve 5) | Across machine direction (Curve 6) | In machine direction (Curve 7) | Across machine direction (Curve 8) | In machine direction (Curve 9) | Across machine direction (Curve 10) | In machine direction (Curve 11) | Across machine direction (Curve 12) | In machine direction (Curve 13) | Across machine direction (Curve 14) | Sulphite Pulp (Curve 15) |
| Min. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. | Mm. |
| 1 | 9 | 7 | 11 | 9 | 6 | 5 | 10.5 | 9 | 9.5 | 8 | 17 | 14.5 | 24 | 23 | 30 |
| 2 | 12 | 9.5 | 15 | 11.5 | 8.5 | 6.5 | 14.5 | 12.5 | 13 | 11 | 23 | 19.5 | 31 | 33 | 39 |
| 3 | 14 | 11.5 | 17.5 | 13.5 | 10 | 8 | 16 | 14.5 | 15 | 12.5 | 27 | 23 | 40 | 38 | 47 |
| 4 | 16.5 | 13 | 19.5 | 15.5 | 12 | 9.5 | 18.5 | 16.5 | 17 | 14.5 | 30 | 26 | 44 | 43 | 54 |
| 5 | 18 | 14.5 | 21 | 17 | 13 | 10.5 | 20 | 18 | 18 | 15.5 | 33 | 29 | 48 | 46 | 60 |
| 6 | 19 | 15.5 | 23 | 18 | 14 | 11.5 | 22 | 19 | 20 | 17 | 36 | 31 | 54 | 50 | .. |
| 7 | 21 | 17 | 24 | 19 | 15 | 12 | 23.5 | 20.5 | 21 | 17.5 | .. | 33 | 57 | 55 | .. |
| 8 | 22 | 18 | 25.5 | 20.5 | 16 | 12.5 | 24.5 | 22 | 22 | 19 | .. | 35 | 61 | 58 | .. |
| 9 | 23 | 18.5 | 26.5 | 21.5 | 16.5 | 13.5 | 25.5 | 23 | 23 | 19.5 | .. | 36 | 63 | 61 | .. |
| 10 | 24 | 19.5 | 27.5 | 22 | 17 | 14 | 27 | 24 | 24 | 21 | 45 | 38 | 66 | 64 | .. |
| 12 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | .. | ... | .. | .. | 90 |

[1] The values for the cartridge papers are the averages of four individual tests.

diameters of the samples were calculated according to Lucas *(7)* and are presented in Table II.

### Discussion of Results

The curves as plotted can be expressed by the empirical equation:

$$h = K \cdot t^n \quad (1)$$

or

$$h^{\frac{1}{n}} = k \cdot t \quad (2)$$

where $h$ = the height of the column of water in mm., $k$ = a constant, $t$ = the time in minutes, and $n$ = the slope of the curve.

The slopes of the best lines through the several groups of points varied only within experimental error so that lines of slope 0.425 were drawn for each case. The values for the slope and the constant $K$ of equation 1 were determined graphically while those for the constant $k$ of equation 2 were calculated.

The rationalization of equation 1, comes through the application of Poiseuille's law for the volume of flow from a capillary. It is:

$$v = \frac{\pi r^4 H d}{8\eta l} \quad (3)$$

in which $v$ = the volume of outflow; $r$ = the capillary radius; $H$ = the head of liquid; $d$ = the density of the liquid; $\eta$ = the viscosity of the liquid; $l$ = the capillary length.

In the application of Lucas the force of the surface tension $\sigma$ of the liquid functions as the head of liquid. Then if $v$ is measured in terms of distance (length of capillary thread) as Bell and Cameron *(2)* showed, the equation

$$h^2 = k \cdot t \quad (4)$$

is derived.

The law applies only to fine capillaries and when the measurements are made at a point far removed from the final equilibrium so that the driving force may be considered constant. These conditions were assumed to be essentially true *(3)* for the materials tested at the Forest Products Laboratory.

The slope of the experimental curve as determined by equation 4, is 0.5. Lucas *(7)* obtained experimental curves of that slope when he used glass capillaries. He also showed that the equation

$$h^2 = \frac{r\sigma}{2\eta}(t \cos \theta) \quad (5)$$

can be derived. If the assumption is made that complete wetting of the capillaries occurs, the factor cos $\theta$ of equation 5 becomes equal to one and the equation can be written:

$$h^2 = \frac{r\sigma}{2\eta} t \quad (6)$$

Thus the $k$ of equation 2, is expressed in terms of capillary radius and surface tension and viscosity of the liquid, or:

$$k = \frac{r\sigma}{2\eta}$$

from which follows the effective capillary diameter:

$$D = \frac{4\eta}{\sigma} k \quad (7)$$

The $k$ in equation 7, is a rate and since the viscosity and surface tension are expressed in C. G. S. units the $k$ must be expressed as centimeters per second when the equation is solved for D. In calculating the effective capillary diameters recorded in Table II the time interval of 300 seconds was used inasmuch as that of 600 seconds might have some elements of equilibrium involved. The ratios of the respective diameters in the machine direction to the corresponding ones across the machine direction are also included in Table II. It is thought likely that the smaller the value of the ratio the greater the homogeneity of the sheet.

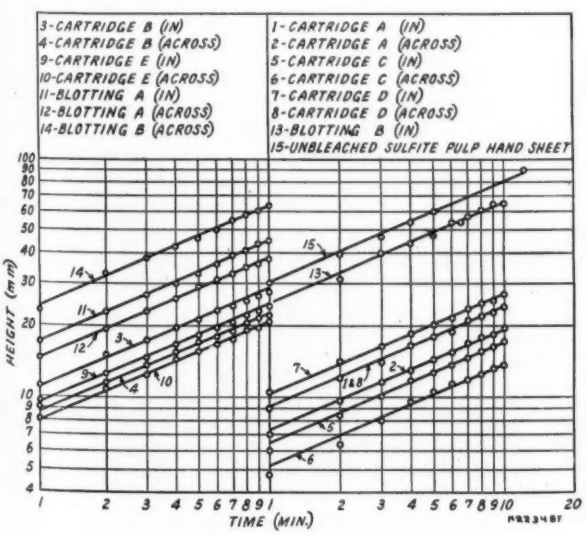


FIG. 1.
**Relation of capillary rise of water to time.**

TABLE II
THE EFFECTIVE CAPILLARY DIAMETERS OF PULP AND PAPER SHEETS

| Sample | Machine direction | n | $k = \frac{h^{2.n}}{t = 300}$ | $4k$ | $\eta \mid \sigma$ | Effective capillary diameter $= \frac{4k\eta}{\sigma}$ | Ratio D in machine direction / D across machine direction |
|---|---|---|---|---|---|---|---|
| Cartridge | | | Cm./sec. | | Cm./sec.[1] | Microns | |
| A | In | 0.425 | 0.0133 | 0.0532 | 0.0001183 | 0.063 | 1.62 |
| | Across | .425 | .0083 | .0332 | do. | .039 | |
| B | In | .425 | .0191 | .0764 | .0001183 | .090 | 1.64 |
| | Across | .425 | .0116 | .0464 | do. | .055 | |
| C | In | .425 | .0062 | .0248 | .0001183 | .029 | 1.70 |
| | Across | .425 | .0037 | .0148 | do. | .017 | |
| D | In | .425 | .0170 | .0680 | .0001183 | .080 | 1.27 |
| | Across | .425 | .0133 | .0532 | do. | .063 | |
| E | In | .425 | .0133 | .0532 | .0001183 | .063 | 1.43 |
| | Across | .425 | .0093 | .0372 | do. | .044 | |
| Blotting | | | | | | | |
| A | In | .425 | .0551 | .2204 | .0001183 | .261 | 1.29 |
| | Across | .425 | .0428 | .1712 | do. | .202 | |
| B | In | .425 | .1326 | .5304 | .0001183 | .628 | 1.10 |
| | Across | .425 | .1210 | .4840 | do. | .572 | |
| Sulphite pulp test sheet | | .425 | .2253 | .9012 | .0001183 | 1.065 | |

[1] At 27° C. $\sigma$ water = 71.82 dynes/cm., and $\eta$ water = 0.0085 dyne-sec./cm².

A closely related phenomenon is the swelling that occurs when cellulosic material is placed in water. Pacheles *(10)*, using the measurements of Hofmeister on glue and agar jellies, showed that the equation for a unimolecular reaction was applicable in this case. The equation is:

$$k = \frac{1}{t} \log \frac{a\delta}{(a\delta - a)}$$

Where $a$ = the amount of liquid taken up at time $t$, and $a\delta$ = the amount of liquid taken up at maximum swelling.

The possibility of determining this velocity coefficient for pulps and, in turn, the relation if any, between the coefficient and the reaction of the pulps during beating should be determined in further studies. Other liquids in addition to water should, of course, be included in the studies. Since the data in Table 2 were obtained, Kress and Bialkowsky *(6)* have the aid of a modified Posnjak's apparatus *(5)* measured what they term the amount of swelling of cellulose caused by various liquids. With

further modification this apparatus might be adaptable to the determination of the velocity coefficient.

### Conclusion

There is a definite relationship between the time and the height of capillary rise of water in strips of certain types of pulp and paper sheets. This relationship can be used as a means of measuring the effective capillary diameter parallel to the upper and lower surfaces of a sheet.

With paper, the ratios of the values in one machine direction to the values in the other are suggested as a possible indication of the uniformity of the pores and sheet structure. Water is unsuited for testing calendered and sized papers in this manner since the sorption is too slow.

The advisability of determining if a swelling velocity coefficient of pulp can be obtained and a possible use of such a value are indicated.

### Literature Cited

(1) Baird, P. K. and Hrubesky, C. E. "The Volumetric Composition of Paper," Paper Trade J. 91, No. 4, p. 48-51 (1930).
(2) Bell and Cameron, 1906. J. Phys. Chem. 10, 658 (1906).
(3) Frundlich, H. "Colloid and Capillary Chemistry", p. 84. New York. E. P. Dutton and Co. (1922).
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(5) Kolloidchem. Beihefte V. 3, 417 (1912).
(6) Kress, Otto and Bailkowsky, Harold. Paper Trade J. V. 93, No. 20, 219 (1931).
(7) Lucas, R. "The Time-Law Governing the Capillary Rise of Liquids." Kolloid-Z. 23, 15 (1918).
(8) Manual of Tests for Pulpwood, Pulp, Stuffs, and Papers. F. P. L. Method No. 181, Forest Products Laboratory mimeographed report.
(9) Ostwald, Wo., Kolloid-Z. 2, Suppl. No. 11 (1908).
(10) Pascheles, P., Archiv. 67, 219 (1897).
(11) Stamm, A. I. "The Capillary Structure of Softwoods." J. Agric. Research. 38. 23 (1929).

# Program for Fall Meeting of TAPPI

## Appleton, Wis., September 26, 27, 28, 1933

### Tuesday, September 26

| | |
|---|---|
| 8:30 9:30 A. M. | Registration, Institute of Paper Chemistry and Conway Hotel. |
| 9:30 12:30 P. M. | Papers presented by the Institute of Paper Chemistry, Alexander Gymnasium. |
| 1:00 P. M. | Luncheon for men, North Shore Country Club. |
| 2:00 5:00 P. M. | Golf Tournament, Trap Shooting, Swimming at Alexander Gymnasium. Prizes. |
| 7:00 P. M. | Dinner and Smoker for Men, North Shore Country Club. |

PRESENTATION OF PRIZES

LADIES' PROGRAM

| | |
|---|---|
| 9:30 12:00 M. | Registration, Institute of Paper Chemistry and Conway Hotel. |
| 1:30 P. M. | Bus leaves Conway Hotel for Butte Des Morts Club. |
| 2:30 P. M. | Cards and Golf. |
| 6:30 P. M. | Dinner at Butte Des Morts Club. |
| 7:30 P. M. | Bus Leaves Butte Des Morts Club for Institute of Paper Chemistry. |
| 8:30 P. M. | Recital at the Institute of Paper Chemistry. |

### Wednesday, September 27

| | |
|---|---|
| 9:30 12:30 P. M. | Papers presented by the United States Forest Products Laboratory of Madison, Wisconsin, Alexander Gymnasium. |
| 1:00 P. M. | Luncheon for Men, North Shore Country Club. |
| 2:00 5:00 P. M. | Mill visits or golf. |
| 7:00 P. M. | Joint Banquet, ladies and gentlemen, North Shore Country Club. Toastmaster, Dr. Henry M. Wriston, President of Lawrence College and Director of the Institute of Paper Chemistry. Principal speaker, a prominent pulp and paper manufacturer. There will also be brief talks given by past presidents of the Technical Association. |

LADIES' PROGRAM

| | |
|---|---|
| 11:00 A. M. | Bus leaves Conway Hotel for trip through Neenah and Menasha along lake shore to Oshkosh. |
| 1:00 P. M. | Luncheon and style show at Stein's, Oshkosh. |
| 3:00 P. M. | Bus returns to Appleton. |
| 6:00 P. M. | Bus leaves Conway Hotel for North Shore Country Club. |
| 7:00 P. M. | Joint Banquet at North Shore Country Club. |

### Thursday, September 28

| | |
|---|---|
| 9:30 12:30 P. M. | Presentation of General Papers, Alexander Gymnasium. |
| 1:00 P. M. | Joint Luncheon at North Shore Country Club. |
| 2:00 5:00 P. M. | Mill Visits or Golf. |

LADIES' PROGRAM

| | |
|---|---|
| 1:00 P. M. | Joint Luncheon at North Shore Country Club. |

A moving picture reel taken at the Institute of Paper Chemistry illustrating changes in various fibers during swelling, will be exhibited at the Alexander Gymnasium. W. E. Rogers, Professor of Wood Technology at the Institute, has prepared some interesting cross-sections of various papers. These have been enlarged through the courtesy of the Bausch & Lomb Optical Company and are on display in the Museum of the Institute.

P. A. Paulson, Chairman of the Mill Visits, has carefully prepared a series of trips to mills and allied factories in the Fox River Valley. Each member of TAPPI will be requested at the time of registration to select the particular trip he desires.

The Institute of Paper Chemistry will be open from 8:00 A. M. to 5:00 P. M. each day of the Convention. Student guides will be available for complete inspection of buildings and equipment.

Since an unusually large attendance is expected hotel reservations should be made early through T. E. Xistris, Valley Iron Works Company, Appleton, Wis.

# Code of Fair Competition for the Glazed and Fancy Paper Industry

To effectuate the policy of Title I of the National Industrial Recovery Act, the following is hereby established as a Code of Fair Competition for the Glazed and Fancy Paper Industry.

### Article I—Definitions

1. The following words are used in this Code with the meanings herein set forth:

"Industry"—The manufacture in the United States of plain and embossed glazed and fancy papers, and of plain and embossed coated papers, whose products are used primarily for decorative purposes (and not primarily as a base stock for legendary printed matter), and of printed papers, the use of which is directly competitive with plain and embossed glazed and fancy papers, and with plain and embossed coated papers used primarily for decorative purposes, and of such special glazed, fancy, and cloth-lined papers as are natural affiliates.

"Persons"—To include partnerships, corporations, and associations.

"Member"—A person engaged in such industry.

"Act"—The National Recovery Act.

"Administrator"—The National Recovery Administrator.

"Administration"—The National Recovery Administration.

"Product Committee"—A committee of not less than three members, appointed by the Code Authority to represent each major product of the industry, and composed wholly of members manufacturing such products.

"Executive Director"—The Executive Director of the Glazed and Fancy Paper Association.

### Article II—Organization

1. The members of the Executive Committee of the Glazed and Fancy Paper Association, together with such other person or persons as the Administrator may designate, are hereby constituted the Code Authority of the Industry. The members of the Code Authority designated by the Administrator shall act in an advisory capacity and shall have no vote.

2. The Code Authority is charged generally with the duty of administering this Code under the sanction and with the approval of the Administrator.

### Article III—Hours of Labor

1. No employee in the industry shall be required or permitted to work more than eight hours in any one day, nor more than forty hours in any one week; with the following exceptions:

(a) Employees regularly engaged in an Executive, Supervisory, or Technical capacity.

(b) Outside salesmen.

(c) Employees engaged in emergency repair or maintenance work.

(d) In cases of seasonal peaks of demand, labor may be employed for such additional time above the limits prescribed herein as is necessary; but in any case, all work in excess of forty (40) hours per week shall be paid for at not less than time and one third; and provided further that no such employee shall work more than one thousand forty (1,040) hours in any six (6) months period.

(e) No watchman, engineer, or fireman shall be required or permitted to work more than forty-two (42) hours in any one (1) week.

(f) No chauffeur or truckman shall be required or permitted to work more than forty (40) hours in any one (1) week.

2. At the end of each week every member shall report to the Code Authority, in such detail as it may require, the number of man-hours worked in that week under the foregoing exceptions (c) and (d), and the ratio which said man-hours bears to the total number of man-hours of labor of the same class during said week.

3. The provisions for maximum hours set out in this Article establish a maximum number of hours of labor per week for every employee covered, so that under no circumstances shall such an employee be employed or be permitted to work for one or more members of the industry in the aggregate in excess of the prescribed number of hours in a single week.

### Article IV—Wages

1. The minimum rate of wage for any mechanical worker or artisan employed in any plant mill, or factory or on work connected with or incidental to the operation of such plant, mill, or factory shall be as follows:

Male labor, 35 cents per hour.

Female labor, 30 cents per hour.

2. Pieceworkers shall be paid at rates which will yield a worker of average skill for an hour's work not less than the minimum rate prescribed.

3. Learners, for a period of six (6) weeks, may be paid not less than eighty per cent (80%) of the minimum rates prescribed in the foregoing sections, but no person who has worked a period of six (6) weeks for any member as a learner may thereafter be classified as a learner.

4. The minimum rates of wages for all other employees, except Commission Salesmen, shall be as follows: Not less than fifteen dollars ($15.00) per week in any city of over five hundred thousand (500,000) population, nor less than fourteen dollars and fifty cents ($14.50) per week in any city between two hundred fifty thousand (250,000) and five hundred thousand (500,000) population, nor less than fourteen dollars ($14.00) per week in any city between twenty-five hundred (2,500) and two hundred fifty thousand (250,000) population, nor less than twelve dollars ($12.00) per week in towns of less than twenty-five hundred (2,500) population. Provided, however, that office boys and girls may be paid not less than eighty percent (80%) of such minimum wage, but the number of employees classified as office boys or girls shall not exceed five percent (5%) of the total number of employees covered by the provision of this section.

5. The minimum wage hereby prescribed shall not be considered as a discrimination by reason of sex and where, in any case, women do substantially the same work or perform substantially the same duties as men, they shall receive the same rate of wages as men receive for doing such work or performing such duties.

6. The wage rates of all employees receiving more than the minimum rates herein prescribed shall be equitably adjusted and within ninety (90) days after the effective date hereof the Code Authority shall report to the Adminis-

trator the action taken by all members of the industry in making such adjustment.

7. Workers who are physically handicapped are exempt from the provisions of Sections 1 and 4 hereof but the number of such workers in any class shall not exceed five percent (5%) of the total workers in such class.

**Article V—General Labor Provisions**

1. No person under sixteen (16) years of age shall be employed.

2. Employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection. No employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing. Employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

**Article VI—Accounting—Selling**

1. The Code Authority shall proceed at once to provide comparable and uniform principles of costing which, after approval by a majority of the members of the industry, shall be used by all members of the industry.

2. No employer shall sell any product of his manufacture at a price or upon such terms or conditions as will result in the customer paying for goods received less than the cost to the seller, determined in accordance with the comparable and uniform principles of costing herein prescribed.

3. In arriving at any basic cost, the current market price of the necessary raw materials shall be used.

4. If the Code Authority determines that for any product of the Industry and for any class of customer it has been the generally recognized practice to sell such product to such customers on the basis of printed net price lists and fixed terms of payment which are distributed to the trade, each manufacturer of such product shall within ten (10) days after notice of such determination file with the Executive Director a net price list individually prepared by him showing his current prices and terms of payment, and the Executive Director shall immediately and simultaneously send copies thereof to all known manufacturers of such specified products. Revised price lists may be filed from time to time thereafter with the Executive Director by any manufacturer of such product, to become effective upon the date specified therein but such revised price lists shall be filed with the Executive Director ten (10) days in advance of the effective date, unless the Code Authority shall authorize a shorter period. Copies of revised price lists, with notice of the effective date specified, shall be immediately and simultaneously sent to all known manufacturers of such product, who therewith may file, if they so desire, revisions of their price lists, which shall become effective upon the date when the revised price list first filed shall go into effect.

If the Code Authority shall determine that for any product of the Industry and for any class of customer not now being sold on the basis of price lists with fixed terms of payment the distributing or marketing conditions for said product and class of customer are similar to or the same as the distributing or marketing conditions for a product and class of customer where the use of price lists is well recognized and that a system of selling on net price lists should be put into effect for such products and classes of customer each manufacturer of such product shall within twenty (20) days after notice of such determination file with the Executive Director net price lists as the Code Authority may direct showing his prices and terms of payment, and such price lists and terms of payment may be revised in the manner hereinbefore provided.

The initial exercising of the powers delegated in this Article to the Code Authority are subject to the approval of the Product Committee which represents manufacturers of the product affected.

No member shall sell directly or indirectly by any means whatsoever any product of the industry covered by the provisions of this Article at a lower price or on more favorable terms of payment than those provided in his current price list or lists.

**Article VII—Reports and Statistics**

1. The Code Authority shall require the members from time to time to furnish such information as it or the Administrator shall deem to be necessary for the proper administration of the Code. Failure of any member promptly to furnish information required by the Code Authority and substantially in the form prescribed by it shall constitute a violation of the Code. The Code Authority shall not require any information regarding trade secrets or the names of the customers of any member.

2. Any or all such information furnished to the Executive Director by any member shall be subject to checking for the purpose of verification by an examination of the books and accounts and records of such member by any disinterested accountant or accountants or other qualified person or persons designated by the Executive Director and shall be so checked for such purpose if the Executive Director shall require it. The cost of each such examination shall be treated as an expense of administering the Code: *Provided however,* That, if upon such examination any such information shall be shown to have been incorrect in any material respect, such cost shall be paid by the member which furnished such information.

3. All reports and statistics referred to in this Article shall be submitted only to the Executive Director of the Glazed and Fancy Paper Association, who shall hold the information furnished by the individual members strictly in confidence, and shall compile the same under coded headings for the use of the Code Authority, and no publication thereof to anyone or in any manner shall be made other than in combination with similar information furnished by other members, in which case publication shall be made only in such manner as will avoid the disclosing separately of such confidential information, except in the case of code violation.

4. The Code Authority shall make and file with the Administration such reports as the Administrator may from time to time require.

**Article VIII—Operations**

1. On and after the effective date, no employer shall operate productive machinery in this industry in excess of an average of eighty hours per week nor more than 2,080 hours per six months' period.

**Article IX—General Provisions**

1. If any member is also a member of another industry, the provisions of this code shall apply to and affect only that part of his business which is included in this industry.

2. If any provision of this Code is declared invalid or unenforceable, the remaining provisions shall nevertheless be continued in full force and effect.

3. The failure on the part of any member of this Industry to comply with the provisions of this Code or to perform any obligation imposed on him thereby shall constitute a violation of the Code.

4. Upon complaint of any member or upon his own initiative the Executive Director shall investigate alleged violations of this Code, and if the same are substantiated, make reports to the Code Authority and to the Administrator.

5. The Code Authority may formulate a statement of the Trade Customs and Fair Trade Practices of the Industry and submit the same to the Administrator for approval, and such Trade Customs and Fair Trade Practices when approved shall have the same force and effect as if incorporated in this Code.

6. Such of the provisions of this Code as are not required to be included therein by the Act, may, with the approval of the President of the United States, be modified or eliminated as changes in circumstances or experience may indicate.

7. No amendment to this Code shall be presented to the Administrator for approval without the affirmative vote of two thirds of the members of the Industry present at a meeting called for the purpose of acting upon such proposed amended—Provided, that five (5) days' notice of such meeting shall have been given to all members of the Industry, in which notice shall be inserted a copy of the proposed amendment.

8. This Code shall become effective on the second Monday after the date upon which it shall be approved by the President of the United States.

9. This Code and all the provisions thereof are expressly made subject to the right of the President in accordance with the provisions of Clause 10 (b) of the Act, from time to time to cancel or modify any order, approval, license, rule, or regulation, issued under Title I of said Act, and specifically to the right of the President to cancel or modify his approval of such Code or any conditions imposed by him upon his approval thereof.

# Code of Fair Competition for Waxed Paper

### Purpose

To effectuate the policies of Title I of the National Industrial Recovery Act the following is hereby established as a Code of Fair Competition for the Waxed-Paper Industry.

### Article I—Definitions

The following words are used in this Code with the meanings herein set forth:

"Industry"—The Waxed-Paper Industry is declared to be composed of all manufacturers of paper (but not paper board or fruit wrappers) coated and/or impregnated with paraffin or mineral oil.

"Person"—Includes natural persons, partnerships, corporations, associations, trustees, trustees in bankruptcy, and receivers.

"Member"—A person engaged in such industry.

"Act"—Title I of the National Industrial Recovery Act.

"Administrator"—The National Recovery Administrator.

"Administration"—The National Recovery Administration.

### Article II—Organization

1. The Members of the Executive Committee of the American Waxed-Paper Association, together with such other person or persons as the Administrator may designate are hereby constituted the Code Authority of the Industry. The Members of the Code Authority designated by the Administrator shall act in an advisory capacity and shall have no vote.

2. The Code Authority is charged generally with the duty of administering this Code under the sanction and with the approval of the Administrator.

### Article III—Hours of Labor

1. No employee in the industry shall be required or permitted to work more than forty hours in any one week, with the following exceptions:

(a) Employees regularly engaged in an Executive, Supervisory, or Technical capacity.

(b) Outside Salesmen.

(c) Watchmen, Chauffeurs, Truckmen, Licensed Engineers, and Firemen.

(d) Employees engaged in emergency repair or maintenance work.

(e) *Provided,* That during seasonal peaks of demand, labor may be employed forty-eight (48) hours per week in not more than eight (8) weeks during any six months' period, the first six months' period to begin on the effective date of this Code.

2. At the end of each month every member shall report to the Code Authority, in such detail as it may require, the number of man hours worked in that month under the foregoing exceptions (c), (d), and (e), and the ratio which said man hours bears to the total number of man hours of labor of the same class during said month.

3. The provisions for maximum hours set out in this Article establish a maximum number of hours of labor per week for every employee covered, so that under no circumstances shall such an employee be employed or be permitted to work for one or more members of the industry in the aggregate in excess of the prescribed number of hours in a single week.

### Article IV—Wages

1. The minimum rate of wage for any mechanical worker or artisan employed in any plant, mill or factory or on work connected with or incidental to the operation of such plant, mill or factory shall be as follows:

(a) Northern Zone, which shall consist of all of the territory of the United States except the States named in subdivision (b).

Male labor 35 cents per hour. Female labor 30 cents per hour.

(b) Southern Zone, which shall consist of the States of Delaware, Maryland, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, the District of Columbia, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, and Texas.

Male labor 30 cents per hour. Female labor 25 cents per hour.

2. Piece workers shall be paid at rates which will yield a worker of average skill for an hour's work not less than the minimum rate prescribed.

3. Learners for a period of six (6) weeks, may be paid not less than eighty per cent (80%) of the Minimum rates prescribed in the foregoing sections, but no person who has worked a period of six (6) weeks for any member as a learner may thereafter be classified as a learner.

4. The minimum wage hereby prescribed shall not be

considered as a discrimination by reason of sex and where, in any case, women do substantially the same work or perform substantially the same duties as men they shall receive the same rate of wages as men receive for doing such work or performing such duties

5. The wage rates of all employees receiving more than the minimum rates herein prescribed shall be equitably adjusted and within ninety (90) days after the effective date hereof the Code Authority shall report to the Administrator the action taken by all members of the industry in making such adjustment.

6. Workers who are physically handicapped are exempt from the provisions of Sections 1 and 4 hereof but the number of such workers in any class shall not exceed five percent (5%) of the total workers in such class.

**Article V—General Labor Provisions**

1. No person under sixteen (16) years of age shall be employed.

2. Employees shall have the right to organize and bargain collectively through representatives of their own choosing and shall be free from the interference, restraint or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection. No employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing. Employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

3. Retention and advancement of employees shall be on the basis of their individual merit without regard to their affiliation or non-affiliation with any organization.

**Article VI—Accounting—Selling**

1. Comparable and uniform principles of cost accounting will be adopted by the Executive Committee, with the approval of the Administrator, and must be applied by the members of the industry.

2. Except in performance of bona fide contracts in existence on the effective date of this Code, no member shall sell any product of his manufacture at a price or upon such terms or conditions as will result in the purchaser paying for the goods received less than the cost to the seller, determined, for the present, in accordance with his own method of costing and after uniform principles of cost accounting have been prescribed, in accordance with such principles, provided, however, that discontinued lines and damaged goods or seconds, which must be converted into cash to meet emergency needs may be disposed of in such manner and on such terms and conditions as the Code Authority may approve and as are necessary to move such products into buyers' hands.

3. If the Executive Committee or its agent determines that in any branch or subdivision of the waxed-paper industry it has been the generally recognized practice to sell a specified product on the basis of printed net price lists or price lists with discount sheets, and fixed terms of payment, which are distributed to the trade, each manufacturer of such product shall within ten days after notice of such determination, file with the agent of the Executive Committee a net price list, or a price list and discount sheet as the case may be, individually prepared by him, showing his current prices, or prices and discounts, and terms of payment, and the agent shall immediately send copies thereof to all known manufacturers of such specified product. Revised price lists with or without discount sheets may be filed from time to time thereafter with the agent of the Executive Committee by any manufacturer of such product, to become effective upon the date specified therein, but such revised price lists and discount sheets shall be filed with the agent twenty-four hours in advance of the effective date. Copies of revised price lists and discount sheets with notice of the effective date specified, shall be immediately sent to all known manufacturers of such product who thereupon may file if they so desire, revisions of their price lists and/or discount sheets, which shall become effective upon the date when the revised price list or discount sheet first filed shall go into effect.

If the Executive Committee or its agent shall determine that in any branch or subdivision of the waxed-paper industry not now selling its product on the basis of price lists with or without discount sheets, with fixed terms of payment, the distribution or marketing conditions in said branch or subdivision are similar to or the same as the distribution or marketing conditions in a branch or subdivision of the industry where the use of price lists with or without discount sheets is well recognized and that the system of selling on net price lists or price lists and discount sheets should be put into effect in such branch or subdivision, each manufacturer of the product or products of such branch or subdivision shall within twenty days after notice of such determination file with the agent net price lists or price lists and discount sheets as the agent may direct, containing fixed terms of payment, showing his prices and discounts and terms of payment, and such price lists and/or discount sheets and terms of payment may be revised in the manner hereinabove provided.

4. Except in fulfillment of bona fide contracts existing on the effective date of this Code, no member of the industry shall sell any such products at a price or prices lower than or upon terms and conditions more favorable than stated in his price list, published as hereinbefore provided.

5. Bona fide export sales shall be exempt from the provisions of sections 2 and 3 hereof.

6. Selling of waxed paper on consignment is prohibited.

**Article VII—Reports and Statistics**

1. Each member shall prepare and file with the Code Authority at such times and in such manner as it may prescribe statistics of plant capacity, volume of production, volume of sales in units and dollars, orders received, unfilled orders, stocks on hand, inventory both raw and finished, number of employees, wage rates, employee earnings, hours of work, and such other data or information as the Code Authority or the Administrator may from time to time require.

2. Except as otherwise provided in the Act, all statistics, data, and information filed in accordance with the provisions of Section 1 hereof shall be confidential and the statistics, data, and information of one member shall not be revealed to another member. No such data or information shall be published except in combination with other similar data and in such a manner as to avoid the disclosure of confidential information. The Code Authority shall arrange in such manner as it may determine for the publication currently to members of totals of orders received, unfilled orders, shipments, stocks of finished goods on hand, and production.

3. The Code Authority shall make and file with the Administration such reports as the Administrator may from time to time require.

**Article VIII—General Provisions**

1. If any member is also a member of another industry, the provisions of this Code shall apply to and effect only that part of his business which is included in this industry.

2. If any provision of this Code is declared invalid or unenforceable the remaining provisions shall nevertheless continue in full force and effect.

3. The Code Authority shall have power to investigate alleged violations of this Code and acts or courses of conduct by any member which are or appear to be contrary to the policy of the Act or which tend or may tend to render ineffective this Code, and to report the same with recommendations to the Administrator.

4. The Code Authority may formulate a statement of the Trade Customs and Fair Trade Practices of the Industry and submit the same to the Administrator for approval, and such Trade Customs and Fair Trade Practices when approved shall have the same force and effect as if incorporated in this Code.

5. Such of the provisions of this Code as are not required to be included therein by the Act may, with the approval of the President of the United States, be modified or eliminated as changes in circumstances or experience may indicate.

6. This Code shall become effective on the second Monday after the date upon which it shall be approved by the President of the United States.

7. This Code and all the provisions thereof are expressly made subject to the right of the President, in accordance with the provisions of Clause 10 (b) of the Act, from time to time to cancel or modify any order, approval, license, rule, or regulation issued under Title I of said Act, and specifically to the right of the President to cancel or modify his approval of such code or any conditions imposed by him upon his approval thereof.

8. No production machine in the Waxed Paper Industry shall be operated to exceed one hundred and forty-four (144) hours per week.

9. Any work or process incidental to and carried on by a member at his plant as a part of the manufacture of any product of the industry shall be governed by the provisions of this Code rather than of any other code.

10. To further effectuate the policies of the Act, the Executive Committee of the American Waxed Paper Association, or such successor committee or committees as may hereafter be constituted by the action of the American Waxed Paper Association, is set up to cooperate with the Administrator as a planning agency for the waxed-paper industry. The Administrator is to name three members of this committee. Such committee may from time to time present to the Administrator recommendations based on conditions in the industry, as they may develop from time to time, which will tend to effectuate the operation of the provisions of this Code and the policy of the Act, and in particular along the following:

(1) Recommendations (a) for the requirement by the Administrator of registration by persons engaged in the waxed-paper industry of their productive machinery; (b) for the requirement by the Administrator that prior to the installation of additional productive machinery by persons engaged or engaging in the waxed-paper industry except for the replacement of a similar number of existing machines, or to bring the operation of existing productive machinery into balance, such persons shall secure certificates that such installation will be consistent with effectuating the policy of the Act during the period of the emergency; and (c) for the granting or withholding by the Administrator of such certificates if so required by him.

(2) Recommendations for the making of requirements by the Administrator as to practices by persons engaged in the Waxed Paper Industry as to methods and conditions of trading the naming and reporting of prices which may be appropriate to avoid discrimination, to promote the stabilization of the industry, to prevent and eliminate unfair and destructive competitive prices and practices.

(3) Recommendations for regulating the disposal of distress merchandise in a way to secure the protection of the owners and to promote sound and stable conditions in the industry.

(4) Recommendations for dealing with any inequalities that may otherwise arise to endanger the stability of the industry and of production and employment.

(5) Such recommendations, when approved by the Administrator, shall have the same force and effect as any other provisions of this Code.

11. Amendment to this Code must be assented to by a two-thirds vote of the members of the American Waxed Paper Association representing at least two thirds of the tonnage of the entire membership.

12. Any employer may participate in any endeavors of the American Waxed Paper Association in the preparation of any revisions of, or additions or supplements to, this Code by accepting the proper pro-rata share of the cost and responsibility of creating and administering it, either by becoming a member of the American Waxed Paper Association or by paying to it an amount equal to the dues from time to time provided to be paid by a member in like situation of the American Waxed Paper Association.

## Modified Folding Box Agreement

WASHINGTON, D. C., August 23, 1933.—A modified President reemployment agreement covering the folding box manufacturing industry has been approved by NRA officials.

Employees—other than factory or mechanical workers or artisans—in the Folding Box Manufacturing Industry under its agreement may not be employed in any place or manner for more than a 40-hour week, nor more than 8 hours in any one day, except in the case of truck drivers, whose 40-hour week may be averaged over a period of two months with the promise that they shall not be employed more than 48 hours in any one week and all work in excess of 40 hours per week shall be considered overtime. No factory or mechanical worker or artisan may be employed more than 40 hours per week or more than 8 hours per day, except for one week during each eight-week period, when they may be employed 45 hours, the hours over 40 to be considered overtime. No factory or mechanical workers or artisans shall be paid less than 40 cents per hour in the North or less than 30 cents per hour in the South, unless the hourly rate for the same class of work on July 15, 1929, was lower, in which case they may be paid not less than the latter rate, and in no event less than 32½ cents per hour in the North and 30 cents per hour in the South. All overtime shall be paid at the rate of time and one-third.

## New Sample Book of L. L. Brown's Fine

An interesting new sample book of Brown's Fine has just been issued by the L. L. Brown Paper Company of Adams, Mass. It shows the increased quality and greater value which now inhere in this very versatile L. L. Brown paper.

The new arrangement is such as to demonstrate the many stock weights, colors and finishes which make this paper exceptionally fitted not only for record purposes but for distinguished letter-heads, checks and many other uses.

The L. L. Brown Paper Company or its agents will be glad to furnish copies of the new book.

## The Lucky Fifty Thousandth

On August 19 the fifty thousandth signature was placed on the mile-long roll of paper in The Paper Foundation's cooperative Paper Exhibit at A Century of Progress World's Fair. This roll, when filled with signatures, will be forwarded to Congress as a petition for 2 cent postage.

The accompanying photograph shows Phil A. Howard, president of The Paper Foundation, ready to present to Miss Betty Brown of Deland, Florida, a beautiful box of stationery and a bouquet of Dennison-made paper flowers. The box of stationery was given by the Hawthorne Paper Company, Kalamazoo, Mich., manufacturers of Uncle Sam Bond, which paper is used for this petition. Miss Brown, the daughter of Mayer Brown of Deland, Florida, was delighted by her luck which brought her to the Paper Exhibit at just the right time to be the fifty thousandth to sign the roll.

THE 50,000TH TO SIGN THE ROLL

August 19 was not one of the big days at A Century of Progress World's Fair, yet by actual count 9,195 entered the Paper Exhibit, which brings its total attendance to date above 450,000. There are ten big weeks before closing, which will undoubtedly bring the attendance up to a million before November 1.

The officers of The Paper Foundation are jubilant over the success of this cooperative Paper Exhibit, which is proving the greatest medium for nation-wide publicity the paper trade has ever sponsored.

## Swedish News Print Production

News print production by the Swedish mills for the first six months of the current year totaled 114,357 metric tons as against 123,657 tons during the corresponding six months of last year.

## Superintendents To Meet at Rhinelander

The Fall meeting of the Northwest Division of American Pulp and Paper Mill Superintendents Association will be held September 15 and 16 at Rhinelander, Wis.

The Oneida Hotel at Rhinelander has been chosen as headquarters. Arrangements have also been made with resorts conveniently close to town for those who will prefer, during their visit here, to enjoy a stay directly in the northern woods.

Wildwood Lodge, a few miles northwest of Rhinelander on Highway 47, and Pinewood Lodge, a few miles east on County Trunk C, are taking reservations either for furnished cottage rooms or rooms in the main lodges.

It is urged that all reservations be made early.

All main highways to Rhinelander are in excellent condition, being either concrete or oiled. Those who enjoy the out-of-doors should by all means plan to drive.

The program proper will provide entertainment for both ladies and gentlemen.

FRIDAY

| | | |
|---|---|---|
| 8:20 A.M. | Registration . . . . . | Oneida Hotel |
| 10:30 | Business Meeting . . . . . | |
| 12:30 P.M. | Luncheon . . . . . | Oneida Hotel |
| 1:30 | Golf . . . . . | Rhinelander Country Club |
| | Also visiting or trips to surrounding resorts | |
| 7:00 P.M. | Stag Dinner and Entertainment, | Oneida Hotel |

SATURDAY

| | | |
|---|---|---|
| 9:30 A.M. | *Technical Meetings:* | |
| | Pulp Division | |
| | Paper Division | |
| | Power & Maintenance Division | |
| 12:30 P.M. | Luncheon . . . . . | Oneida Hotel |
| 2:00 | Mill visits . . . . . | |
| 7:30 | Joint Dinner—Ladies and gentlemen—and Dancing . . . . . | Wildwood Lodge |

Program for ladies will consist of luncheon and bridge at different resorts and launch rides through the lakes.

## Carthage Papermakers on Three Shifts

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., Sept. 2, 1933.—A new plan of operations became effective this week at the plant of the Carthage Papermakers Inc., which will place it under the code adopted by the pulp and paper industry. Three shifts of eight hours each have been adopted with ten extra men being placed at work. An increase in wages will also be observed as prescribed by the code and every requirement of the Recovery Act is to be observed. The plant, formerly owned by the Carthage Pulp and Broad Company, was opened several months ago under a co-operative method and its operation has been highly successful since that time.

## Container Corp. To Erect Office Building

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., Sept. 2, 1933.—Officials of the Container Corporation of America have announced that plans are being prepared for the construction of a new office building at the plant in Wabash, Ind. It will be located east of the coating mills. Last week the plant put in operation a six-hour day and 40 additional men were put to work. This makes 100 men who have been employed during the last six weeks. Sixty men were employed when the company went from a 12-hour to an 8-hour day. At the present time the plant is operating 24 hours a day.

# IMPORTS OF PAPER AND PAPER STOCK

## NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

### NEW YORK IMPORTS

WEEK ENDING SEPTEMBER 2, 1933

CIGARETTE PAPER

Standard Products Corp., De Grasse, Havre, 46cs.; Standard Products Corp., Paris, Havre, 63cs.; Champagne Products Corp., by same, 29cs.

WALL PAPER

F. J. Emmerich, Laconia, Liverpool, 1cs.; F. J. Emmerich, New York, Hamburg, 2cs, 2bls.; F. A. Binder, New York, Hamburg, 1cs.; Heemsoth Basse & Co., New York, Hamburg, 1bl.

PAPER HANGINGS

W. H. S. Lloyd & Co., Georgic, Liverpool, 2cs.

NEWS PRINT

M. H. Bell, Markland, Liverpool, N. S., 6620 rolls; Jay Madden Corp., Gen. von Steuben, Bremen, 273 rolls; Perkins Goodwin & Co., Gen. von Steuben, Bremen, 349 rolls; Perkins Goodwin & Co., New York, Hamburg, 37 rolls; Baldwin Paper Co., New York, Hamburg, 46 rolls; Lathrop Paper Co., Inc., City of Fairbury, Helsingfors, 49 bls.; Jay Madden Corp., City of Fairbury, Helsingfors, 574 rolls; Jay Madden Corp., Scanmail, Helsingfors, 195 rolls; Lunham & Reeve, Scanmail, Helsingfors, 188 rolls; National Paper & Type Co., Bergensfjord, Oslo, 25 rolls; ——, Bergensfjord, Oslo, 518 rolls.

PRINTING PAPER

Ozalid Corp., Volendam, Rotterdam, 28cs.; Senefelder Co. Inc., New York, Hamburg, 9cs.

WRAPPING PAPER

Heemsoth Basse & Co., Volendam, Rotterdam, 38 bls.; Westchester Paper Co. Inc., Gripsholm, Gothenburg, 27 bls.

PACKING PAPER

J. Della Monica, Minnewaska, Antwerp, 3cs.; J. Van den Brock, Volendam, Rotterdam, 3 bls.

FILTER PAPER

J. Della Monica, Minnewaska, Antwerp, 1cs.; H. Reeve Angel & Co., Inc., Amer. Trader, London, 6cs.

DRAWING PAPER

H. Reeve Angel & Co. Inc., Amer. Trader, London, 11cs.

PARCHMENT PAPER

A. Colle, Black Heron, Antwerp, 1 roll.

SURFACE COATED PAPER

Globe Shipping Co., Gen. von Steuben, Bremen, 68cs.; Gevert Co. of America, Minnewaska, Antwerp, 46cs.; Hensel, Bruckman & Lorbacher, New York, Hamburg, 2cs.; Phoenix Shipping Co., New York, Hamburg, 2cs.

METAL COATED PAPER

Globe Shipping Co., Milwaukee, Hamburg, 29cs.; Globe Shipping Co., New York, Hamburg, 15cs.; K. Pauli Co., New York, Hamburg, 7cs.

COATED PAPER

Chas. Happel, Milwaukee, Hamburg, 2cs.; Chas. Happel, New York, Hamburg, 6cs.

PHOTO PAPER

Eastman Kodak Co., Amer. Trader, London, 1cs.; J. J. Gavin, Majestic, Southampton, 2cs.; American Express Co., New York, Hamburg, 30cs.

TISSUE PAPER

W. J. Byrnes, Majestic, Southampton, 1cs.; Herman Schuttle Co., Pr. Hayes, Genoa, 5cs.; Moller Products Corp., Laconia, Liverpool, 1cs.

TRANSFER PAPER

Rohner Gehrig & Co., Bremen, Bremen, 8cs.

DECALCOMANIAS

Sellers Transportation Co., Bremen, Bremen, 8cs.

WRITING PAPER

A. W. Fenton, De Grasse, Havre, 8cs.; Distinctive Writing Paper Co., Pr. Harding, Hamburg, 8cs.

ENVELOPES

Beckhard Sinfred & Co., Pr. Harding, Hamburg, 2cs.; Beckhard Simfred & Co., New York, Hamburg, 3cs.

IVORY BOARD

R. F. Downing & Co., Volendam, Rotterdam, 13cs.

STRAW BOARD

Famous Paper Box Co., Volendam, Rotterdam, 1000 pkgs.; Famous Paper Box Co., Ala, Rotterdam, 2195 pkgs.

PASTEBOARD

De Grauw Aymar & Co., Exporter, Genoa, 30cs.

CARD BOARD

H. A. Greene & Co., De Grasse, Havre, 3cs.; Brooks Paper Co., Pr. Harding, Hamburg, 141cs.; ——, New York, Hamburg, 45cs.

MISCELLANEOUS PAPER

Burroughs Wellcome & Co., Amer. Trader, London, 3cs.; E. Dietzgen & Co., Amer. Trader, London, 35cs.; B. F. Drakenfeld & Co., Laconia, Liverpool, 2cs.; Keller Dorian Paper Co., Paris, Havre, 6cs.; The Borregaard Co. Inc., Gripsholm, Gothenburg, 242 rolls; Kraemer &

Co., Gripsholm, Gottenburg, 118 bls; Keuffel & Esser Co., Pr. Harding, Hamburg, 45cs.

### Rags, Baggings, Etc.

F. Stern, Laconia, Liverpool, 59 bls. bagging; ——, Caledonia, Glasgow, 67 bls. bagging; Darmstadt, Scott & Courtney, Gen. von Steuben, Bremen, 68 bls. bagging; ——, Gen. von Steuben, Bremen, 74 bls. rags; Bank of New York Trust Co., Amer. Trader, London, 40 bls. rags; Bank of New York Trust Co., Black Heron, Antwerp, 83 bls. waste paper; Darmstadt, Scott & Courtney, Black Heron, Antwerp, 226 bls. jute waste; J. Cohen Son & Co., Black Heron, Antwerp, 28 bls. rags; E. J. Keller Co. Inc., Black Heron, ——— 161 bls. rags; E. J. Keller Co. Inc., Black Heron, ———, 95 bls. bagging; H. Schimmel, Volendam, Rotterdam, 657 bls. cotton waste; Bank of Athens, Byron, Piraeus, 36 bls. rags; Irving Trust Co., City of Fairbury, Stettin, 81 bls. rags; Castle & Overton, Inc., City of Fairbury, Stettin, 103 bls. rags; Amtory Trading Corp., Scanmail, Leningrad, 1440 bls. rags; M. Marcovitz, Lehigh, Manchester, 45 bls. bagging; Darmstadt, Scott & Courtney, Lehigh, Manchester, 72 bls. bagging; G. A. Henshaw & Sons, Lehigh, Manchester, 75 bls. rags; ——, Lehigh, Manchester, 80 bls. paper stock; G. W. Millard & Co., Lehigh, Manchester, 138 bls. rags.

### Glue Stock, Etc.

Trans-Atlantic Animal By-Products, City of Fairbury, Gdynia, 300 bgs. skin glue; ——, Milwaukee, Hamburg, 100 bgs. bone glue; ——, New York, Hamburg, 200 bgs. bone glue.

### Old Rope

Banca Com'l Italiana Trust Co., Amer. Trader, London, 84 coils; A. S. Wilson, Inc., Fred. VIII, Oslo, 61 coils; ——, New York, Hamburg, 90 coils.

### Casein

——, Paris, Havre, 334 bgs.; Innes Speiden & Co., Amer. Legion, Bayres, 84 bgs.; Chase National Bank, Amer. Legion, Bayres, 167 bgs.; Casein Manf'g Co., Amer. Legion, Bayres, 954 bgs.; D. C. Andrews & Co., New York, Hamburg, 70 bgs; ——, New York, Hamburg, 334 bgs.

### China Slag

L. A. Solomon & Bro., Laconia, Liverpool, 400 bgs.; C. T. Wilson Co. Inc., Laconia, Liverpool, 25 casks.

### Wood Pulp

M. Sone, Gen. von Steuben, Bremen, 1000 bls. wood pulp, 150 tons; ——, Gen. von Steuben, Bremen, 1100 bls. wood pulp; ——, Bulkley Dunton & Co., Laponia, ——, 6125 bls. wood pulp, 1244 tons; J. Anderson & Co., Laponia, Soderhamn, 665 bls. sulphate, 135 tons; Johaneson, Wales & Sparre, Inc., Laponia, Sundsvall, 3721 bls. sulphite, 713 tons; Johaneson, Wales & Sparre, Inc., Laponia, Sundsvall, 450 bls. sulphate, 85 tons; Johaneson, Wales & Sparre, Inc., Laponia, Sundsvall, 1125 bls. chemical pulp, 228 tons; Mead Sales Co., Inc., Laponia, Sundsvall, 250 bls. sulphite, 50 tons; A. Giese & Son, Volendam, Rotterdam, 40 bls. wood pulp; Price & Pierce, Ltd., City of Fairbury, Wallvik, 600 bls. sulphite, 100 tons; Price & Pierce, Ltd., City of Fairbury, Wallvik, 250 bls. mechanical pulp, 50 tons; ——, City of Fairbury, Hermosand, 1710 bls. sulphate, 285 tons; ———, City of Fairbury, Hermosand, 1210 bls. sulphite, 200 tons; Lagerloef Trading Co., City of Fairbury, Helsingfors, 100 bls. mechanical pulp, 20 tons; Perkins Goodwin & Co., City of Fairbury, Norrsundet, 625 bls. sulphate, 127 tons; Atterbury Bro., Inc., Gripsholm, Gothenburg, 600 bls. sulphite, ——; M. Sone, Gripsholm, Gothenburg, 1613 bls. wood pulp, 252 tons; Johaneson, Wales & Sparre, Inc., Gripsholm, Gothenburg, 300 bls. chemical pulp; Perkins, Goodwin & Co., Gripsholm, Gothenburg, 375 bls. sulphite; E. M. Sergeant & Co., Gripsholm, Gothenburg, 748 bls. kraft soda; Lagerloef Trading Co., Scanmail, Helsingfors, 274 bls. sulphite, 45 tons; Castle & Overton, Inc., Ala.. Rotterdam, 600 bls. wood pulp, 120 tons; Gottesman & Co., Inc., Bergensfjord, Drammen, 1600 bls. sulphite; Atterbury Bros. Inc., Bergensfjord, Oslo, 4250 bls. woodpulp; J. Anderson & Co., Bergensfjord, Oslo, 2400 bls. sulphite; Castle & Overton, Inc., New York, Hamburg, 690 bls. wood pulp, 138 tons.

## ALBANY IMPORTS

WEEK ENDING SEPTEMBER 2, 1933

Bulkley Dunton & Co., Milos, ——, 3600 bls. wood pulp; Gottesman & Co., Inc., Milos, Sweden, 4000 bls. wood pulp, 508 tons; ——, Milos, Hermosand, 6930 bls. sulphate, 1155 tons; Pagel, Horton & Co., Inc., Milos, Gefle, 1500 bls. sulphate, 300 tons; Pagel, Horton & Co., Inc., Milos, Gefle, 8250 bls. sulphite, 1175 tons; Tradesmans Nat'l Bank & Trust Co., Milos, Norrsundet, 3625 bls. sulphate, 725 tons.

## NEW LONDON IMPORTS

WEEK ENDING SEPTEMBER 2, 1933

Reupblican Publishing Co., Laponia, Sundsvael, 2552 rolls news print; Bulkley Dunton & Co., Laponia, ——, 3000 bls. wood pulp, 508 tons.

## PORTLAND IMPORTS

WEEK ENDING SEPTEMBER 2, 1933

Gottesman & Co. Inc., Ragnhildsholm, Sweden, 7200 bls. wood pulp; M. Sone, Ragnhildsholm, Gothenburg, 1200 bls. wood pulp, 200 tons.

## BOSTON IMPARTS

WEEK ENDING SEPTEMBER 2, 1933

Gottesman & Co. Inc., Falsterbo, Sweden, 300 bls. wood pulp; Gottesman & Co. Inc., Wanja, Sweden, 625 bls. wood pulp; Bulkley Dunton & Co., Leuna, ——, 250 bls. wood pulp; Bulkley Dunton & Co., Wanja, ——, 250 bls. wood pulp; Bulkley Dunton & Co., Graengesburg, ——, 1750 bls. wood pulp; Atkinson Haserick & Co., Pres. Hayes, Genoa, 12 cs wrapping paper; E. J. Keller Co. Inc., City of Fairbury, ——, 340 bls. wood pulp, 52 tons; ——, City of Fairbury, Gdynia, 504 bls. wood pulp, 76 tons; Perkins Goodwin & Co., City of Fairbury, Norresundet, 3695 bls. sulphite, 739 tons; Price & Pierce, Ltd., City of Fairbury, Wallvik, 900 bls. sluphite, 150 tons; Price & Pierce, Ltd., City of Fairbury, Wallvik, 600 bls. sulphate, 100 tons; Price & Pierce, City of Fairbury, Wallvik, 125 bls. mechanical pulp, 25 tons; M. Sone, City of Fairbury, Wallvik, 100 bls. sulphite, 20 tons; Bulkley Dunton & Co., City of Fairbury, ——, 375 bls. wood pulp, 75 tons; Brown Bros. Harriman & Co., City of Fairbury, Hermosand, 960 bls. sulphate, 160 tons; ——, City of Fairbury, Hermosand, 660 bls. sulphite, 110 tons; ——, City of Fairbury, Hernosand, 5880 bls. sulphate, 980 tons; Lagerloef Trading Co., City of Fairbury, Helsingfors, 254 bls. mechanical pulp, 50 tons; G. F. Malcolm, Inc., Laconia, Liverpool, 8cs. tissue paper; ——, Laconia, Liverpool, 625 bags hide cuttings.

## PHILADELPHIA IMPORTS

WEEK ENDING SEPTEMBER 2, 1933

J. Anderson & Co., City of Fairbury, Stettin, 390 bls. wood pulp, 77 tons; ——, City of Fairbury, Gdynia, 168 bls. wood pulp, 25 tons.

## New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, September 6, 1933.

Now that the Labor Day holiday has passed, the outlook for a livelier local paper market is brighter. Demand for the various standard grades of paper was light during the past week. Sales forces of the leading paper organizations are planning a strenuous campaign for the closing months of the year. Prices are steady to firm.

The position of the news print paper market is practically unchanged. Production in the United States, Canada and Newfoundland is being maintained in sufficient volume to take care of current requirements. Accumulations at the mills are normal. Prices are generally holding to schedule.

Conditions in the paper board market are satisfactory. Increased demand for box board is anticipated. Prices are steady. The fine paper market continues to exhibit a strong undertone. Tissues are moving in good volume. The coarse paper market is sharing in the general improvement.

### Mechanical Pulp

No radical changes have transpired in the ground wood pulp market. Manufacturing operations, both in this country and abroad, are practically keyed to consumption and the statistical position of the industry is sound. Quotations are holding to previously quoted levels, without difficulty.

### Chemical Pulp

The chemical pulp market is steady. Due to the holidays, demand for the various grades has fallen off slightly, but more lively trading is expected from now until the end of the year, at least. Quotations on both domestic and imported chemical pulp are well sustained and shading is infrequent.

### Old Rope and Bagging

Quietness reigns in the old rope market at present. Demand for domestic and foreign old manila rope is only moderately active. Small mixed rope is moving slowly. Prices remain unaltered. The bagging market is irregular. While scrap bagging is fairly active, gunny is easier. Roofing bagging is dull.

### Rags

The domestic rag market is marking time. Although domestic cotton rags are somewhat listless for the time being, quotations are holding up well. No. 1 white shirt cuttings continue steady. Roofing grades are quiet. The situation of the imported rag market is still affected by fluctuations in foreign exchange.

### Waste Paper

Board mill demand for the lower grades of paper stock is fairly persistent. With collections improving, offerings of No. 1 mixed paper are more generous, and quotations on this grade are now $2 per ton lower. Offerings of strictly folded news are still limited and prices are fairly steady.

### Twine

Trading in the local twine market was moderately active during the past week. Demand for the various grades should be excellent for the rest of the year. Prices continue to hold up well and, although competition is keen, reports of concessions are not numerous.

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## Paper Machinery Firms Organize

The National Association of Manufacturers of Pulp and Paper Machinery and Equipment is now being organized following a meeting held at the Hotel Commodore in New York City on August 23.

An organization committee of five was appointed at the meeting which was attended by the representatives of sixteen machinery companies to draw up a set of by-laws and a code for formation at a meeting which will be called later to which all those eligible to the association will be invited.

Phillips Dennett, of the Bird Machine Company, is the chairman of this organization committee, of which the other members are W. B. Wilshushen, of the Cameron Machine Company, and Walter L. Barker, of the Improved Paper Machinery Company. John Cornell, of *The Paper Mill,* was appointed acting secretary. The representatives of the following sixteen companies attended the meeting:

American Paper Machinery and Engineering Works, Glens Falls, N. Y.; Bevis Machine Company, Middletown, Ohio; Bird Machine Company, S. Walpole, Mass.; Cameron Machine Company, Brooklyn, N. Y.; Carthage Machine Company, Carthage, N. Y.; Clark-Aiken Company, Lee, Mass.; Filtration Engineers, Inc., Newark, N. J.; Glens Falls Machine Works, Glens Falls, N. Y.; Improved Paper Machinery Company, Nashua, N. H.; E. D. Jones & Sons Company, Pittsfield, Mass.; Montague Machine Company, Turners Falls, Mass.; J. O. Ross Engineering Corporation, New York City; Swenson Evaporator Company, Harvey, Ill.; Trimbey Machine Works, Glens Falls, N. Y.; Union Machine Company, and Union Screen Plate Company, Fitchburg, Mass., and the Valley Iron Works, Appleton, Wis.

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## William Glennon Honored

After 34 years' service, William Glennon, credit manager of the Robert Gair Company, Inc., retired on August 1. The occasion was marked by a luncheon in Mr. Glennon's honor at the Advertising Club of New York, at which Wilbur F. Howell, secretary of the company, was host. On behalf of the Gair company, Ernest Meyer, treasurer, presented Mr. Glennon with a platinum and gold watch chain. C. R. Bradley succeeds Mr. Glennon as credit manager.

# Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, September 6, 1933.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is still quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3 to 3½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. The contract movement is well up to average. Prices are holding to previously quoted levels. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is firm. Domestic standard ground is quoted at 14¾ cents and finely ground at 15½ cents per pound. Argentine standard ground is selling at 14 cents and finely ground at 15 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is fairly persistent. Prices remain steady and unchanged. Solid caustic soda is quoted at from $2.55 to $3.00, while the flake and the ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is fairly active. Contract shipments are moving regularly. Prices are firm. Imported china clay is quoted at from $12 to $17 per ton, ship side, while domestic paper making clay is selling at from $4.50 to $12 per ton, at mine.

CHLORINE.—Trading in the chlorine market is brisk. The contract movement is fairly heavy. Prices are holding to former levels, without difficulty. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is stronger. The grades of gum rosin used in the paper mills are now quoted at around $5.00 per 280 pounds, in barrels, at works, while wood rosin is selling at $3.90 per 280 pounds, in barrels, at Southern shipping points.

SALT CAKE.—Paper mill demand for salt cake is excellent. Prices are firm. Salt cake is quoted at from $14 to $14.50; chrome salt cake at from $13.50 to $14 per ton, at works, while imported salt cake is selling at from $14 to $14.50 per ton, on dock.

SODA ASH.—Business in the soda ash market continues satisfactory. Shipments against contract are moving at a normal pace. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows; in bulk, $1.05; in bags, $1.30; and in barrels, $1.43.

STARCH.—The starch market is exhibiting a strong undertone. The contract movement is seasonal. Prices remain unchanged. Special paper making starch is quoted at $2.84 per 100 pounds, in bags; and at $3.11 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Sentiment in the sulphate of alumina market is optimistic. Prices are holding to schedule. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is firm. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was along routine lines. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $20 to $50 per ton, ship side.

# Market Quotations

## Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ledgers | 6.50 | @ | — |
| Bonds | 6.00 | @ | — |
| Index | 6.00 | @ | — |
| Writings— | | | |
| Extra Superfine | 6.50 | @ | — |
| Superfine | 6.25 | @ | — |
| Tub sized | 5.75 | @ | — |
| Engine sized | 5.50 | @ | — |
| Book Cased— | | | |
| S. & S. C. | 5.50 | @ | — |
| S. & S. C. Litho. | 5.75 | @ | — |
| M. F. | 5.25 | @ | — |
| Coated and Enamel | 6.15 | @ | 9.30 |
| Coated Litho | 6.90 | @ | — |
| Tissues— Per Ream— | | | |
| White No. 1 | .60 | @ | .80 |
| White No. 2 | .55 | @ | .70 |
| Anti-Tarnish M. G. only | .75 | @ | .80 |
| Colored | .80 | @ | 1.00 |
| Kraft | .75 | @ | .80 |
| Manila | .65 | @ | .70 |
| Manila— | | | |
| No. 1 Jute | 9.00 | @ | 9.25 |
| No. 2 Jute | 7.75 | @ | 8.50 |
| No. 1 Wood | 4.00 | @ | 5.25 |
| No. 2 Wood | 3.50 | @ | 4.00 |
| Butchers | 3.37½ | @ | — |
| Fibre Papers— | | | |
| No. 1 Fibre | 4.25 | @ | 5.50 |
| No. 2 Fibre | 4.00 | @ | 4.75 |
| Common Bogus | 1.50 | @ | 3.00 |
| Screenings | 2.00 | @ | 3.00 |
| Card Middles | 4.00 | @ | 5.00 |
| Glassine— | | | |
| Bleached, basis 25 lbs., No. 1 | .11 | @ | — |
| No. 2 | .10 | @ | — |
| Bleached, basis 20 lbs. | .13 | @ | — |

(Delivered New York)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Roll, contract | 40.00 | @ | — |
| Rolls, spot | 40.00 | @ | — |
| Sheets | 45.00 | @ | — |
| Side Runs | 25.00 | @ | — |
| Kraft— | | | |
| No. 1 Domestic | 4.75 | @ | 5.00 |
| No. 2 Domestic | 3.62½ | @ | 4.00 |
| Southern | 3.62½ | @ | 4.00 |
| Imported | Nominal | | |
| Boards—per ton— | | | |
| News | 45.00 | @ | 50.00 |
| Chip | 42.50 | @ | 47.50 |
| Binders Boards | 68.00 | @ | 72.00 |
| Kraft Liner | 75.00 | @ | 85.00 |
| Standard 85 Test Jute Liner | 50.00 | @ | 55.00 |
| Sgl. Mla. Ll. Chip | 52.50 | @ | 55.00 |

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Wood Pulp Board | 70.00 | @ | 80.00 |

## Mechanical Pulp

(On Dock, Atlantic Ports)

| | | | |
|---|---|---|---|
| No. 1 Imported— | | | |
| Moist | 24.00 | @ | 28.00 |
| Dry | 26.00 | @ | 28.00 |

(F.o.b. Mill)

| | | | |
|---|---|---|---|
| No. 1 Domestic and Canadian | 24.00 | @ | 28.00 |

## Chemical Pulp

(On Dock, Atlantic Ports)

| | | | |
|---|---|---|---|
| Sulphite (Imported)— | | | |
| Bleached | 2.70 | @ | 3.00 |
| Easy Bleaching | 1.95 | @ | 2.10 |
| No. 1 strong unbleached | 1.90 | @ | 2.00 |
| Mitscherlich Unbleached | 1.95 | @ | 2.00 |
| No. 2 Strong unbleached | 1.75 | @ | 1.85 |
| No. 1 Kraft | 1.75 | @ | 1.85 |
| No. 2 Kraft | 1.60 | @ | 1.70 |
| Sulphite— | | | |
| Bleached | 2.75 | @ | 3.25 |

(F. o. b. Pulp Mill)

| | | | |
|---|---|---|---|
| Sulphite (Domestic and Canadian)— | | | |
| Bleached | 2.50 | @ | 3.00 |
| Easy Bleaching | 1.80 | @ | 1.90 |
| News | 1.70 | @ | 1.80 |
| Mitscherlich unbleached | 2.25 | @ | 2.50 |
| Kraft (Domestic) | 1.60 | @ | 2.75 |
| Soda Bleached | 2.50 | @ | — |

## Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1 | 5.75 | @ | 6.25 |
| Silesias No. 1 | 4.00 | @ | 4.50 |
| New Unbleached | 6.75 | @ | 7.25 |
| New Soft Blacks | 3.00 | @ | 3.25 |
| Blue Overall | 4.25 | @ | 4.50 |
| Fancy | 2.00 | @ | 2.25 |
| Washables | 1.75 | @ | 2.00 |
| Mixed Khaki Cuttings | 2.50 | @ | 2.75 |
| O. D. Khaki Cuttings | 3.13 | @ | 3.38 |
| Men's Corduroy | 1.50 | @ | 1.75 |
| New Mixed Blacks | 2.50 | @ | 2.75 |

Old Rags

| | | | |
|---|---|---|---|
| White, No. 1— | | | |
| Repacked | 3.75 | @ | 4.00 |
| Miscellaneous | 3.00 | @ | 3.50 |
| White, No. 2— | | | |
| Repacked | 2.00 | @ | 2.50 |
| Miscellaneous | 1.75 | @ | 2.00 |
| Thirds and Blues— | | | |
| Repacked | 1.75 | @ | 2.00 |
| Miscellaneous | 1.50 | @ | 1.75 |
| Black Stockings | 2.50 | @ | 3.00 |
| Roofing Rags— | | | |
| No. 1 | .90 | @ | .95 |
| No. 2 | .80 | @ | .85 |
| No. 3 | .75 | @ | .80 |
| No. 4 | .70 | @ | .75 |
| No. 5A | .65 | @ | .70 |

## Foreign Rags

New Rags

| | | | |
|---|---|---|---|
| New Dark Cuttings | 1.50 | @ | 1.60 |
| New Mixed Cuttings | 1.60 | @ | 1.70 |
| New Light Silesias | 3.50 | @ | 3.75 |
| Light Flannelettes | 3.25 | @ | 3.50 |
| Unbleached Cuttings | 5.50 | @ | 5.75 |
| New White Cuttings | 5.00 | @ | 5.50 |
| New Light Oxfords | 3.25 | @ | 3.50 |
| New Light Prints | 2.75 | @ | 3.00 |

Old Rags

| | | | |
|---|---|---|---|
| No. 1 White Linens | 6.25 | @ | 6.75 |
| No. 2 White Linens | 5.25 | @ | 5.75 |
| No. 3 White Linens | 4.25 | @ | 4.00 |
| No. 4 White Linens | 2.00 | @ | 2.25 |
| No. 1 White Cotton | 3.75 | @ | 4.00 |
| No. 2 White Cotton | 3.00 | @ | 3.25 |
| No. 3 White Cotton | 2.50 | @ | 2.75 |
| No. 4 White Cotton | 1.50 | @ | 1.60 |
| Extra Light Prints | 2.00 | @ | 2.25 |
| Ord. Light Prints | 1.75 | @ | 1.85 |
| Med. Light Prints | 1.55 | @ | 1.65 |
| Dutch Blue Cottons | 1.65 | @ | 1.80 |
| French Blue Linens | 2.10 | @ | 2.25 |
| German Blue Linens | 1.85 | @ | 2.00 |
| German Blue Cottons | 1.35 | @ | 1.50 |
| Checks and Blues | 1.30 | @ | 1.40 |
| Lindsay Garments | 1.10 | @ | 1.15 |
| Dark Cottons | .95 | @ | 1.00 |
| Old Shopperies | .85 | @ | .90 |
| New Shopperies | .80 | @ | .85 |
| French Blues | 1.50 | @ | 1.65 |

## Old Rope and Bagging

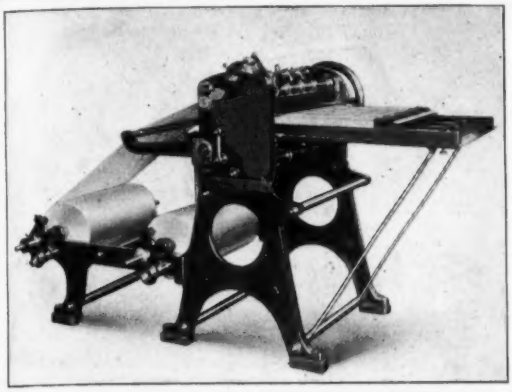
(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign | 1.30 | @ | 1.40 |
| Domestic | 1.25 | @ | 1.35 |
| Wool Tares, light | 1.05 | @ | 1.15 |
| Wool Tares, heavy | 1.05 | @ | 1.15 |
| Bright Bagging | 1.00 | @ | 1.10 |
| Manila Rope— | | | |
| Foreign | 2.75 | @ | 3.00 |
| Domestic | 2.50 | @ | 2.75 |
| Small Mixed Rope | 1.00 | @ | 1.25 |
| New Burlap Cut | 1.50 | @ | 1.75 |
| Hessian Jute Threads— | | | |
| Foreign | 2.60 | @ | 2.75 |
| Domestic | 2.80 | @ | 3.00 |

## Old Waste Papers

(F. o. b. New York)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Envelope Cuttings | 2.65 | @ | 2.85 |
| Ordinary Hard White No. 1 | 2.40 | @ | 2.50 |
| Hard White No. 2 | 2.30 | @ | 2.40 |
| Soft White No. 1 | 2.30 | @ | 2.40 |
| Flat Stock— | | | |
| Stitchless | 1.05 | @ | 1.15 |
| Overissue Mag | 1.05 | @ | 1.15 |
| Solid Flat Book | .95 | @ | 1.05 |
| Crumpled No. 1 | .85 | @ | .90 |
| Solid Book Ledger | 1.50 | @ | 1.75 |
| Ledger Stock | 1.05 | @ | 1.15 |
| New B. B. Chips | .65 | @ | .70 |
| Manilas— | | | |
| New Env. Cut | 1.65 | @ | 1.75 |
| New Cuttings | 1.20 | @ | 1.25 |
| Extra No. 1 old | .90 | @ | 1.00 |
| Print | Nominal | | |
| Bogus Wrapper | .70 | @ | .80 |
| Container | Nominal | | |
| Old Kraft Machine— | | | |
| Compressed bales | 1.20 | @ | 1.30 |
| News— | | | |
| No. 1 White News | 1.20 | @ | 1.30 |
| Strictly Overissue | .75 | @ | .85 |
| Strictly Folded | .80 | @ | .85 |
| No. 1 Mixed Paper | .60 | @ | .65 |



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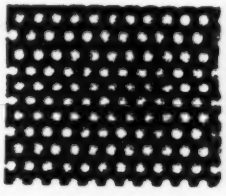

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| No. 1 | .20 | @ | .20 |
| No. 2 | .19 | @ | .20 |
| No. 3 | .17 | @ | .18 |
| A. Italian, 18 basis | .36 | @ | .37 |
| Finished Jute— | | | |
| Dark, 18 basis | .18 | @ | .20 |
| Light, 18 basis | .20 | @ | .22 |
| Jute Wrapping, 3-6 Ply— | | | |
| No. 1 | .15½ | @ | .16½ |
| No. 2 | .15 | @ | .16 |
| Tube Rope— | | | |
| 4-ply and larger | .09¾ | @ | .11¾ |
| Fine Tube Rope— | | | |
| 4-ply | .13¼ | @ | .14¾ |
| 3-ply | .14¼ | @ | .14¾ |
| 2-ply | .15¼ | @ | .15¾ |
| Paper Makers Twine | .08¾ | @ | .10¾ |
| Box Twine, 2-3 ply | .12¾ | @ | .13½ |
| White Hemp | .12¾ | @ | .15¾ |
| Java Sisal— | | | |
| No. 1 Basis | .11½ | @ | — |
| No. 2 Basis | .10½ | @ | — |
| New Zealand Sisal | .11½ | @ | — |
| Sisal Lath Yarn— | | | |
| No. 1 | .13½ | @ | .15½ |
| No. 2 | .11½ | @ | .13½ |
| Manila Twine | .24½ | @ | .29½ |

## CHICAGO

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Rag Bond | .30 | @ | .53¼ |
| Water Marked Sulphite Bond | .09 | @ | .12 |
| Sulphite Bond | .04 | @ | .11 |
| Superfine Writing | .18 | @ | .24 |
| No. 1 Fine Writing | .14 | @ | .18 |
| No. 2 Fine Writing | .12 | @ | .14 |
| No. 3 Fine Writing | .07 | @ | .18 |
| No. 1 M. F. Book | .06½ | @ | .07¼ |
| No. 2 M. F. Book | .05¼ | @ | .06¼ |
| No. 1 S.&S.C. Book | .06¾ | @ | .07¼ |
| No. 2 S.&S.C. Book | .05¾ | @ | .06½ |
| Coated Book | .07½ | @ | .12 |
| Coated Label | .07½ | @ | .10 |
| No. 1 Manila | .04¼ | @ | .05¾ |
| No. 1 Fibre | .04¾ | @ | .05¼ |
| No. 2 Manila | .04¼ | @ | .04¾ |
| Butcher's Manila | .03¾ | @ | .03¾ |
| No. 1 Kraft | 3.50 | @ | 4.50 |
| Southern Kraft | 2.62½ | @ | — |
| No. 2 Kraft | 2.62½ | @ | — |
| Wood Tag Boards | .04¼ | @ | .06¼ |
| Sulphite Screenings | .03 | @ | .03½ |
| Manila Tissue | .07 | @ | .07¼ |
| White Tissue | .07¼ | @ | .07½ |
| (Delivered Central Territory) | | | |
| News, per ton— | | | |
| Rolls, contract | 45.00 | @ | — |
| Sheets | 50.00 | @ | — |
| Boards, per ton— | | | |
| Plain Chip | 37.50 | @ | — |
| Solid News | 43.50 | @ | — |
| Manila Lined Chip | 47.50 | @ | — |
| Patent coated | 55.00 | @ | — |
| Container Lined— | | | |
| 85 Test | 60.00 | @ | 65.00 |
| 100 Test | 60.00 | @ | 70.00 |

### Old Papers
(F. o. b. Chicago)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 White Envelope cuttings | 1.70 | @ | 1.80 |
| No. 1 Hard White | 1.40 | @ | 1.50 |
| No. 1 Soft White | 1.20 | @ | 1.30 |
| Ledger & Writings | .80 | @ | .90 |
| Solid Books | .80 | @ | .90 |
| Blanks | 1.00 | @ | 1.05 |
| Krafts | .90 | @ | 1.00 |
| New Kraft Cuts | 1.20 | @ | 1.30 |
| Manila Env. Cuts | 1.25 | @ | 1.30 |
| Ex. No. 1 Manila | 1.00 | @ | 1.05 |
| Print Manila | .60 | @ | .65 |
| Overissue News | .60 | @ | .70 |
| Old Newspapers— | | | |
| No. 1 | .55 | @ | .65 |
| Mixed Papers— | | | |
| No. 1 | .50 | @ | .55 |
| Roofing Stocks— | | | |
| No. 1 | 30.00 | @ | — |
| No. 2 | 28.00 | @ | — |

## PHILADELPHIA

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Bonds | .04 | @ | .40 |
| Ledgers | .06 | @ | .40 |
| Writings— | | | |
| Superfine | .10 | @ | .18 |
| Extra Fine | .15 | @ | .26 |
| Fine | .15 | @ | .26 |
| Fine, No. 2 | .10 | @ | .25 |
| Fine No. 3 | .05½ | @ | .18 |
| Book, M. F. | .04¾ | @ | .07 |
| Book, S. S. & C. | .05 | @ | .07½ |
| Book, Coated | .06 | @ | .16 |
| Coated Lithograph | .06 | @ | .11 |
| Label | .07 | @ | .11 |
| No. 1 Jute Manila | .06 | @ | .10 |
| Manila Sul., No. 1 | .03 | @ | .06 |
| Manila No. 2 | .03 | @ | .05 |
| No. 1 Kraft | .05¼ | @ | .06½ |
| No. 2 Kraft | .03¾ | @ | .05 |
| Southern Kraft | 2.75 | @ | 4.00 |
| Common Bogus | .03 | @ | .04½ |
| (Delivered Philadelphia) | | | |
| News Print Rolls | 46.00 | @ | 55.00 |
| Straw Board | 40.00 | @ | 45.00 |
| News Board | 37.00 | @ | 45.00 |
| Chip Board | 40.00 | @ | 45.00 |
| Wood Pulp Board | 70.00 | @ | 85.00 |
| Binder Boards— | | | |
| No. 1, per ton | 75.00 | @ | 80.00 |
| No. 2, per ton | 70.00 | @ | 75.00 |
| Carload lots | 65.00 | @ | 70.00 |
| Tarred Felts— | | | |
| Regular | 52.25 | @ | 54.25 |
| Slaters (per roll) | .84 | @ | .94 |
| Best Tarred, 1-ply (per roll) | 1.95 | @ | 2.10 |
| Best Tarred, 2-ply (per roll) | 1.50 | @ | 1.60 |
| Best Tarred, 3-ply | 2.00 | @ | 2.25 |
| Khaki Cuttings— | | | |
| No. 1 O.D. | .03 | @ | .04 |
| No. 2 Mixed | .03 | @ | .04 |
| Corduroy | .02 | @ | .03 |
| New Canvas | .03½ | @ | .04½ |
| New Black Mixed | .02½ | @ | .03½ |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| White No. 1— | | | |
| Repacked | 2.50 | @ | 3.50 |
| Miscellaneous | 1.75 | @ | 2.25 |
| M. G. | 3.00 | @ | 3.75 |
| Thirds and Blues— | | | |
| Miscellaneous | 1.00 | @ | 1.50 |
| Repacked | 1.50 | @ | 2.00 |
| Black Stockings (Export) | 2.00 | @ | 3.50 |
| Roofing Stock— | | | |
| Foreign No. 1 | .50 | @ | .75 |
| Repacked | .70 | @ | .85 |

### Bagging
(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Gunny, No. 1— | | | |
| Foreign | 1.25 | @ | 1.50 |
| Domestic | 1.50 | @ | 1.75 |
| Manila Rope | 2.00 | @ | 2.25 |
| Sisal Rope | 1.25 | @ | 1.50 |
| Mixed Rope | 1.00 | @ | 1.10 |
| Scrap Burlaps— | | | |
| No. 1 | 1.25 | @ | 1.50 |
| No. 2 | .80 | @ | 1.00 |
| Wool Tares, heavy | 2.75 | @ | — |
| Mixed Strings | 1.15 | @ | 1.25 |
| No. 1 New Light Burlap | 2.25 | @ | 2.50 |
| New Burlap Cuttings | 2.00 | @ | 2.25 |

### Old Papers
(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White | 2.30 | @ | 2.40 |
| No. 2 Hard White | 2.10 | @ | 2.15 |
| No. 1 Soft White | 2.00 | @ | 2.10 |
| No. 2 Soft White | 1.15 | @ | 1.25 |
| No. 1 Mixed | .95 | @ | 1.00 |
| No. 2 Mixed | .75 | @ | .80 |
| Solid Ledger Stock | 1.50 | @ | 1.60 |
| Writing Paper | 1.20 | @ | 1.25 |
| No. 1 Books, heavy | 1.20 | @ | 1.25 |
| No. 2 Books, light | .90 | @ | 1.00 |
| No. 1 New Manila | 1.65 | @ | 1.75 |
| No. 1 Old Manila | .95 | @ | 1.00 |
| Print Manila | .90 | @ | .95 |
| Container Manila | .85 | @ | .90 |
| Old Kraft | 1.20 | @ | 1.25 |
| Common Paper | .65 | @ | .70 |
| No. 1 Mixed Paper | .75 | @ | .80 |
| Straw Board Chip | .70 | @ | .75 |
| Binders Board Chip | .70 | @ | .75 |
| Corrugated Board | .90 | @ | .95 |
| Overissue News | .75 | @ | .80 |
| Old Newspaper | .75 | @ | .80 |

### Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1 | .03½ | @ | .04 |
| New White, No. 2 | .02½ | @ | .04 |
| Light Silesias | .02½ | @ | .03 |
| Silesias, No. 1 | .03 | @ | .03½ |
| Black Silesias, soft | .02½ | @ | .03 |
| New Unbleached | .05 | @ | .05½ |
| Washable, No. 1 | .01½ | @ | .02 |
| Blue Overall | .03½ | @ | .04 |
| Cottons—According to grades— | | | |
| Washable, No. 2 | .02½ | @ | .03 |
| New Blue | .01½ | @ | .03 |
| Fancy | .01½ | @ | .03 |
| New Black Soft | .02 | @ | .04 |
| New Light Seconds | .01½ | @ | .02 |
| New Dark Seconds | 1.50 | @ | 1.75 |

## BOSTON

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ledgers— | | | |
| Sulphite | .06 | @ | .12½ |
| Rag Content | .12 | @ | .30 |
| All Rag | .36 | @ | .52½ |
| Bonds— | | | |
| Sulphite | .05½ | @ | .11 |
| Rag Content | .12 | @ | .30 |
| All Rag | .36 | @ | .65 |
| Writings | .06½ | @ | .20 |
| Superfines | .11 | @ | .31 |
| Book, Super | .06 | @ | .09 |
| Book, M. F. | .05½ | @ | .08½ |
| Book, Coated | .08½ | @ | .18 |
| Coated Litho | .09 | @ | .12 |
| Label | .09½ | @ | .15 |
| Jute Manila No. 1 | .11 | @ | .13 |
| Manila, Sul. No. 1 | .04¾ | @ | .06¼ |
| Manila, Sul. No. 2 | .03¾ | @ | .04½ |
| No. 1 Kraft | .04⅞ | @ | — |
| No. 2 Kraft | .03¾ | @ | — |
| (F. o. b. Boston) | | | |
| Southern Kraft | .03¾ | @ | — |
| (F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.) | | | |
| Common Bogus | .02 | @ | .02¾ |
| (Delivered New England points) | | | |
| News Print, rolls | 44.50 | @ | — |
| Straw Board, rolls.009 | — | @ | 35.00 |
| Straw Board in Sheets, basis 35s to 70s | — | @ | 40.00 |
| Filled News Board | 45.00 | @ | 50.00 |
| Chip Board | 42.50 | @ | 47.00 |
| Chip Board (Creasing) | 45.00 | @ | — |
| Single Manila Lined Chip | 52.50 | @ | 62.50 |
| Single White, Patent Coated News Board— | | | |
| Bender | 62.50 | @ | 72.50 |
| Wood Pulp Board | 70.00 | @ | 75.00 |
| Binder Boards | 62.00 | @ | 75.00 |

### Old Papers
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Soft White | 1.90 | @ | 2.00 |
| No. 1 Old Manila | .50 | @ | .60 |
| No. 1 Mixed | .90 | @ | 1.00 |
| No. 2 Mixed | .75 | @ | .80 |
| Solid Ledger Books | 1.40 | @ | 1.50 |
| Overissue Ledger Stock | 1.15 | @ | 1.30 |
| Mixed Ledgers | 1.00 | @ | 1.10 |
| No. 1 Books, heavy | 1.10 | @ | 1.20 |
| No. 1 Books, light | .80 | @ | 1.00 |
| Crumpled Stitchless Book Stock | .50 | @ | .60 |
| Manila Env. Cuttings | 1.25 | @ | 1.30 |
| No. 1 Old Manila | 1.00 | @ | 1.10 |
| White Blank News | 1.20 | @ | 1.30 |
| No. 1 Kraft | 1.25 | @ | 1.30 |
| Manila | .90 | @ | 1.05 |
| No. 1 Mixed Paper | .60 | @ | .67½ |
| Print Manila | — | @ | .90 |
| Overissue News | .80 | @ | .90 |
| Old Newspapers | .70 | @ | .70½ |
| Box Board Chips | .55 | @ | .65 |
| Corrugated Boxes | — | @ | .77½ |
| Screening wrappers | .75 | @ | .85 |

### Bagging
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Manila Rope— | | | |
| Foreign | — | @ | 2.35 |
| Domestic | 2.50 | @ | — |
| Transmission Rope | 1.50 | @ | — |
| Mixed Strings | .85 | @ | — |
| Jute Rope | 1.00 | @ | 1.15 |
| Jute Carpet Threads | .65 | @ | .70 |
| Gunny No. 1— | | | |
| Foreign | 1.25 | @ | 1.30 |
| Domestic | 1.20 | @ | 1.25 |
| Bleachery Burlap | 3.00 | @ | 3.25 |
| Scrap Burlap | 1.00 | @ | 1.10 |
| No. 1 Scrap Burlap | 1.20 | @ | 1.25 |
| Scrap Sisal | 1.10 | @ | 1.15 |
| Scrap Sisal for shredding | 1.15 | @ | 1.30 |
| Wool Tares, heavy | 1.10 | @ | 1.25 |
| New Burlap Cutting | .95 | @ | 1.00 |
| Australian Wool Pouches | 2.50 | @ | — |
| Heavy Baling Bagging | 1.50 | @ | 1.75 |
| Paper Mill Bagging | .85 | @ | .95 |
| Bagging No. 2 | .50 | @ | .60 |
| No. 1 Burlap | 1.75 | @ | 2.25 |

### Domestic Rags (New)
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New Light Prints | .02 | @ | .02¼ |
| New White No. 1 | .05½ | @ | .06 |
| New White No. 2 | .04½ | @ | .05 |
| Silesias No. 1 | .04 | @ | — |
| New Black Silesias | .02½ | @ | .03 |
| New Unbleached | .06 | @ | — |
| Fancy | — | @ | .02¼ |
| Washable | .02¼ | @ | — |
| Cottons—According to grades— | | | |
| Blue Overalls | — | @ | .03¾ |
| New Black, soft | .04 | @ | .04½ |
| Khaki Cuttings | .03 | @ | .03¼ |
| O. D. Khaki | .03 | @ | .03¼ |
| Corduroy | .01¾ | @ | .02 |
| New Canvas | — | @ | .05 |
| B.V.D. Cuttings | .05 | @ | .05½ |

### Domestic Rags (Old)
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Canvas | .04½ | @ | — |
| White No. 1— | | | |
| Repacked | 3.00 | @ | 3.50 |
| Miscellaneous | 2.00 | @ | — |
| White No. 2— | | | |
| Repacked | .01½ | @ | .01¾ |
| Miscellaneous | .01½ | @ | .01¾ |
| Twos and Blues | 1.25 | @ | 1.50 |
| Thirds and Blues | | | |
| Repacked | 1.10 | @ | 1.25 |
| Miscellaneous | .85 | @ | .90 |
| Black Stockings | 2.25 | @ | 2.50 |
| Roofing Stock— | | | |
| No. 1 | .70 | @ | .80 |
| No. 2 | .60 | @ | .70 |
| No. 3 | .35 | @ | .45 |

### Foreign Rags
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Dark Cottons | .75 | @ | .85 |
| New White Shirt Cuttings | 5.50 | @ | 6.50 |
| Dutch Blues | 2.00 | @ | 2.50 |
| New Checks & Blues | 2.50 | @ | 3.00 |
| Old Fustians | 1.25 | @ | 1.55 |
| Old Linsey Garments | 1.05 | @ | 1.25 |

## TORONTO

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Bond— | | | |
| No. 1 Sulphite | .09¾ | @ | — |
| No. 2 Sulphite | .08 | @ | — |
| No. 1 Colored | .10¾ | @ | — |
| No. 2 Colored | .08½ | @ | .10¾ |
| Ledgers (sulphite) | | | |
| Ledgers, No. 1 | .34½ | @ | — |
| Ledgers, No. 2 | .25½ | @ | — |
| Writing | .09 | @ | .09½ |
| Book— | | | |
| No. 1 M. F. (Carloads) | 6.20 | @ | — |
| No. 3 M. F. (Carloads) | 5.70 | @ | — |
| No. 4 M. F. (carloads) | 4.75 | @ | — |
| No. 1 S. C. (carloads) | 6.65 | @ | — |
| No. 3 S. C. (carloads) | 6.20 | @ | — |
| No. 4 S. C. (carloads) | 5.20 | @ | — |
| No. 1 Coated and Litho | 12.00 | @ | — |
| No. 2 Coated and Litho | 10.50 | @ | — |
| No. 3 Coated and Litho | 9.50 | @ | — |
| Coated tinted | 14.00 | @ | — |
| Wrapping— | | | |
| Rag Brown | 4.25 | @ | — |
| White Wrap | 2.00 | @ | — |
| "B" Manila | 4.75 | @ | — |
| No. 1 Manila | 5.25 | @ | — |
| Fiber | 5.25 | @ | — |
| Kraft, M. F. | 5.75 | @ | — |
| Kraft No. 2 | 5.25 | @ | — |

(F.O.B. Cars Toronto)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Rolls (contract) | 45.50 | @ | — |
| Sheets | 50.50 | @ | — |

### Pulp
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ground Wood | 18.00 | @ | 20.00 |
| Sulphite easy bleaching | 40.00 | @ | — |
| Sulphite, news grade | 38.00 | @ | — |
| Sulphite, bleached | 50.00 | @ | 55.00 |
| Sulphate | 50.00 | @ | — |

### Old Waste Paper
(In carload lots, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Env. Cut | 2.00 | @ | 2.10 |
| Soft White | 1.60 | @ | 1.90 |
| White Blk. News | 1.25 | @ | 1.50 |
| Book and Ledger— | | | |
| Flat Magazine and Book Stock (old) | .90 | @ | 1.00 |
| Light and Crumpled Book Stock | .80 | @ | .90 |
| Ledgers and Writings | 1.00 | @ | 1.05 |
| Manilas— | | | |
| New Manila Cut | 1.25 | @ | 1.50 |
| Printed Manilas | .55 | @ | .80 |
| Kraft | 1.25 | @ | 1.50 |
| News and Scrap— | | | |
| Strictly Overissue | 1.00 | @ | — |
| Strictly Folded | .85 | @ | — |
| No. 1 Mixed Paper | .70 | @ | — |

### Domestic Rags
(Price to mills, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| No. 1 White Shirt Cuttings | .05¼ | @ | .05½ |
| Fancy Shirt Cuttings | .02¼ | @ | .02½ |